Curriculum Vitae

Name:	Abbas Cheddad (Phd United Kingdom, Senior Member IEEE /ACM)
Position:	Associate Professor (Permanent position), Group leader and Co-Founder at *ActionSense* Ltd. (UK)
Work Address:	Department of Computer Science (DIDA) Blekinge Institute of Technology. SE-371 79. Karlskrona, Sweden.
Work Profile:	https://www.bth.se/staff/abbas-cheddad-abc/
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Email:	abbas[dot]cheddad[at]bth [dot] se
Personal Web corner:	http://www.abbascheddad.net

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Research Interests (Top)

Computer vision, 3D reconstruction and Optical projection tomography, Steganography, Image analysis, Quantitative imaging biomarkers, Pattern localisation and recognition, Evaluation of the association between image-based phenotypes and genomic biomarkers, Multi-model image fusion, Algorithms for the computer-guided analysis of multi-dimensional data sets, Computer vision for design process, and machine learning applications.

Education (Top)

Level   :   PhD (Awarded with distinction and the faculty's best PhD Thesis for 2009)

Grade :	N/A (Research Based)
Field of Study:	Computer Science
Major :	Computing and Intelligent Systems
Location:	United Kingdom

Means of Sponsorship:	Full research scholarship from the attended University (Vice Chancellor's Research Studentship)
Starting Date:	01/11/2006
Graduation Date:	27/11/2009
Name of Institution:	University of Ulster, Londonderry, United Kingdom.
Title of thesis:	"Steganoflage: a new image steganography algorithm"
External examiner:	Professor Fionn Murtagh, Royal Holloway, the University of London.

Level   :   Master of Science (MSc)

Grade :	N/A (Research Based)
Field of Study:	Computer Science
Major :	Computer Graphics (Pattern Recognition Group)
Location:	Malaysia
Means of Sponsorship:	Full research scholarship from the attended University.
Starting Date:	01/July/2003
Graduation Date:	16/April/2005
Name of Institution:	UTM, Johor, Malaysia.

Employment (Top)

2017 (01- September) -Present:

Associate Professor (Permanent Position)

Department of Computer Science and Engineering, Blekinge Institute of Technology, SE-371 79 Karlskrona, Sweden.

 Alongside my teaching duties, we just finalised a large research project, "*Scalable resource-efficient systems for big data analytics*," where close research collaboration with industry is key for the project execution. I invested my expertise in image processing into this project that focused on Big Data https://a.bth.se/bigdata/. More specifically, I am led research theme B: Big data analytics for image processing. The research profile, Scalable resource-efficient systems for big data analytics, combined existing expertise in machine learning, data mining, and computer engineering to create new knowledge in the area of scalable resource-efficient systems for big data analytics. The value of the new knowledge was demonstrated and evaluated in two application areas (decision support systems and image processing). The group was collaborating, research-wise, with two companies, namely SONY Mobile (Lund) and ArkivDigital (Stockholm), by addressing practical industrial problems. I am also collaborating with GKN Aerospace Sweden AB (the world's leading multi-technology tier 1 aerospace supplier). Recently, we obtained a grant from the Swedish Knowledge Foundation (KKs) for another large profile on "Human-Centered Intelligent Realities (HINTS)". The KKs invests 36 million SEK (~3.4 million euros) in our research project which is also co-financed by 6 companies and BTH. I am the PI and the research group leader in this project on "Visual analytics for Intelligent Realities". More info here.

2015 (October) - 2017 (August):

Senior Lecturer (Permanent Position)

Department of Computer Science and Engineering, Blekinge Institute of Technology, SE-371 79 Karlskrona, Sweden.

2012 – 2015 (September):

I joined Karolinska Institutet (Department of Medical Epidemiology and Biostatistics) in Stockholm as a Postdoc working on risk assessment of breast cancer via statistical image processing. More explicitly, I was working on extracting additional biomarkers, apart from mammographic density, from mammographic images which can boost risk prediction of breast cancer. I was also involved in the automation of the semi-automatic software, *Cumulus*, on the digitised analog **screen films** for area-based density measurement and also on the automation of volumetric mammography density on **processed** full field digital mammography (FFDM).

2010 - 2012:

Post-doc Researcher: I worked at Umeå Centre for Molecular Medicine (UCMM), Umeå University, Sweden. I was responsible for developing imaging algorithms to enhance the reconstruction quality of OPT (Optical Projection Tomography) data. This work culminated in the provision of a software package called DSPOPT which is now provided free of charge to the research community for non-commercial use. Several research centres in Australia (Monash University), Finland (Oulu University), UK (MRC University Unit for Human Genetics, University of Edinburgh- and Imperial College London), Denmark (Novo Nordisk Company), Czech Republic (the Academy of Sciences) and Sweden (Umeå University and Lund University) are now using this software, integrating it into commercial OPT scanners in their respective laboratories. *The above OPT algorithms generally contribute to increase acquisition speed and quality of pancreatic OPT data. The contributions will be exploited in the context of the OPTiSPIM instrument, developed by the Center for Genetic Regulation, Barcelona (CGR) and their spin-off company (BIOPTONICS). See: VIBRANT: PROJECT FINAL REPORT (pp 58-59 and TEMPLATE B1 (p.53)): http://cordis.europa.eu/docs/results/228933/final1-vibrant-executive-summary-final-v2.pdf*

03-Apr- 2006 until 21- Oct-2006:
University Lecturer at the school of computer & communication engineering, Universiti Malaysia Perlis, Malaysia.

Pedagogic qualifications (Top)

- Teaching and Learning in Higher Education -Part I- spring 2013: I successfully finished the teacher's course entitled "*Teaching and Learning in Higher Education*" at Karolinska Institutet. The course is equivalent to 5 weeks university studies (i.e., **7.5 hp**).
  A copy of the certificate: http://www.abbascheddad.net/TeachingCertificate.pdf

- Teaching and Learning in Higher Education -Part II- (Project-based) January-June 2021. This course successfully completed at Blekinge Institute of Technology and is equivalent to 5 weeks university studies (i.e., **7.5 hp**). A copy of the certificate: http://www.abbascheddad.net/HEPII.png

- Training on the CDIO (Conceiving, Designing, Implementing, Operating) Standards: The CDIO framework integrates learning experiences and active/ experiential learning. For this, I undertook a CDIO teaching training workshop (Utbildningsseminarium CDIO) at Blekinge Tekniska Högskola on 9 November / 8 December 2016.

Supervision qualification (Top)

I successfully completed the supervision training course at Blekinge Institute of Technology, Sweden, in Aug 2016. The course is mandatory to get the corresponding right to become an examiner of doctoral students (accreditation to supervise research) and consequently to be eligible to apply for the Docent (Associate Professor) position. A copy of the certificate: http://www.abbascheddad.net/STC.pdf

Teaching/Supervision at BTH (Top)

I have 50% (875h/year) of my time dedicated to teaching. at Blekinge Institute of Technology (BTH) I am involved in teaching the following courses (Teacher -T-, Course Responsible -CR-, Examiner -E-):

- **T:** Datastrukturer o alg –Data Structure and Algorithms- (BSc, B.Eng) DV1549 -7.5hp-
- **CR-T-E:** Inledande programmering i Java - Initial Programming in Java- DV1453 -7.5hp-
- **CR-T-E:** Inledande programmering i Java - Initial Programming in Java- DV1487 -6hp-
- **CR-T-E:** Inledande programmering i Java - Initial Programming in Java- DV1498 -4hp-
- **CR-T-E:** Inledande programmering i Java - Initial Programming in Java- DV1559 -8hp-
- **CR-T-E:** Applied Java Programming (Tillämpad programmering i java) DV1558 -6hp-
- **CR-T-E:** Databasteknik (Database Technology) DV1587 -6hp-
- **T:** Intelligent dataanalys (Intelligent Data Analysis) DV1597 -6hp-

Postgraduate Courses

- **T:** Maskininlärning - Machine Learning - (MSc) DV2542 -7.5hp-
- **T:** Masterarbete i datavetenskap – Supervision of MSc thesis in computer science- DV2566 - 30hp-
- **T:** Examensarbete för civilingenjörer- Degree Project in Master of Science in Engineering- TE2502 -30hp-
- **CR-T-E:** DV2592- Digital Image Processing: a postgraduate course, offered in 2020 and in 2021. 5hp- This course is meant to be incorporated into the AI program at our department.
- **T:** Forskningsorientering inom spel- och programvaruteknik - Research Orientation in Game and Software Engineering- (DV1521), 2hp.
- **T:** Tillämpad artificiell intelligens (Applied Artificial Intelligence) DV2618 -7.5hp-
- **T:** Digital Etik (Digital Ethics) DV2583 -6hp-

Examples of course evaluation can be downloaded from this zip file here.

In addition, the following crash courses were given at KI:

- September 2012: I gave a crash course to master's degree students at Karolinska Institutet (KI) (Department of Learning, Informatics, Management and Ethics) on the topic of medical image processing.

- December 2012: An introductory course to data security in relation to health informatics was given to master's degree students at Karolinska Institutet (Department of Learning, Informatics, Management and Ethics).

Supervised students (Top)

PhD students (Supervision)

1. Dr. Pratheepan Yogarajah (School of Computing & Intelligent Sys, University of Ulster, UK) defended his PhD thesis in 2015. Currently a Lecturer at the same University *-de-facto assistant supervisor-*
2. Dr. Christoffer Nord (Umeå Center for Molecular Medicine –UCMM-, Umeå Universitet, Sweden), defended his PhD thesis on the 26th May 2016. Currently a Postdoc at UCMM *-de-facto main supervisor-*
3. Dr. Fredrik Strand (Department of Medical Epidemiology and Biostatistics –MEB-, Karolinska Institutet, Sweden), defended 8 June 2018 *-de-facto assistant supervisor-*
4. Dr. Siva Krishna Dasari (Department of Computer Science and Engineering, Blekinge Institute of Technology, Sweden), in collaboration with GKN Aerospace Sweden AB. Defended on 18th October 2021 *-formal principal supervisor and examiner-*.
5. **Ongoing:** Ms. Benhamza Hiba (Department of Computer Science, LESIA Laboratory, Algeria), February 2019, *formal assistant supervisor*.
6. **Ongoing:** Mr. Alper Idrisoglu (Faculty of Engineering Sciences, Tillämpad hälsoteknik- Applied Health Technology-) 2021-11-08, *formal assistant supervisor*.

PhD Students (Reviewing)

1. *Senior reviewer*: Doctoral student (Dang Ninh Tran), research subject (Telecommunication Systems), department (Computer Science).
2. *Senior reviewer*: Doctoral student (Xingru Chen), research subject (Software engineering), department (Software engineering).

MSc Theses

MSc Supervision **(22 Defended)**
1. Vishnu Manasa Devagiri –defended- (Oct 2015/ Jan 23, 2017): *"Splicing Forgery Detection and the Impact of Image Resolution."* Now she is a PhD student at our department.
2. Patrik Eliasson -defended- (Oct 2016/ Jan 23, 2017): *"Historical Handwritten Digits Classification using PHOG Features and Random Forest."*

3. Vaishnavi Annavarjula -defended- (Oct 2016/ April 27, 2017): "*Computer-Vision Based Retinal Image Analysis for Diagnosis and Treatment.*"
4. Oskar Carlsson and Daniel Nabhani -defended- (Jan 2017 / June 2017): "User and Entity Behavior Anomaly Detection using network traffic."
5. Edward Fenn and Fornling Erik -defended- (Jan 2017 / June 2017): "Mapping and identifying device types on a network by use of metadata."
6. Faisal Shahzad -defended- September 2019-: "Algorithm Development for Source Camera Model Identification", moved afterwards to IBM, USA.
7. Xusheng Liang -defended- February 2019: "Historical Document Layout Digital Analysis", now an IT Class Engineer at ING, Netherlands. With *ArkivDigital*® AB.
8. Xiaoran Chen -defended- May 2019-: "Image enhancement effect on the performance of convolutional neural networks", now at Huawei (AI field), China.
9. Ramyasree Kola -defended- May 2019-: "Generation of synthetic plant images using deep learning architecture", with *SONY mobile*® AB.
10. Wu Qian -defended- May 2019. "Segmentation-based Retinal Image Analysis"
11. Lakshmi Geethanjali Mandagondi -defended- Oct 2020. "Anomaly Detection in Log Files Using Machine Learning Techniques" with *Ericsson*®, Sweden.
12. Mengqiao Zhao -defended- Oct 2020-: "Handwritten digit recognition based on segmentation-free method"
13. Dilukshi Dissanayake and Fabia Afzal -defended- May 2020. "AI-based Age Estimation from Mammograms"
14. Danylo Shevchuk -defended- May 2020. "Audio Moment Retrieval based on Natural Language Query"
15. Erik Westerberg -defended- May 2020. "AI-based Age Estimation using X-ray Hand Images: A comparison of Object Detection and Deep Learning models"
16. Fredrik Junede and Samuel Asp -defended- May 2020. "Real-time 3D cloud animations using DCGAN"
17. Sarath Chandra Damineni and Munukoti Sai Manikanta -defended- Oct 2020: "Product Usage Data collection and Analysis in Lawn-mowers," with *Husqvarna*® Group, Sweden.
18. Gondlyala, Siddharth Rao -defended- Oct 2020: "Enhancing the JPEG Ghost Algorithm using Machine Learning"
19. Ousainou Darboe **-Ongoing-** started in November 2020.
20. Om Sai Teja Chennupati -defended- Feb 2021: "A structured approach to JPEG tampering detection using enhanced fusion algorithm"
21. Subhash Tummala -defended- Feb 2021: "Classification of Multi Diseases in Apple Plant Leaves"
22. Eric Turesson -defended- March 2021 "Multi-camera Computer Vision for Object Tracking: A comparative study" together with the industry (*Axis Communications*® *AB*). – Feb 2021-
23. Henry Bergström **-Ongoing-** "Cascaded Unsupervised Learning" – Feb 2021-
24. Sachin Pokharel & Muhammad Ali -defended- 28th Sept 2021 "ARMAS: Active Reconstruction of Missing Audio Segments" – Feb 2021-
25. Henrik Johansson **-Ongoing-** "Lightning generation in images using Machine Learning" – Feb 2022-
26. Sai Nikhil Boyapati **-Ongoing-** "Comparison of recommended systems based on auto scaling" – Feb 2022- with *Ericsson*® AB.
27. Kotha Sri Lakshmi Kamakshi Asritha **-Ongoing-** "Imputation of missing values using radiographic images" – Feb 2022-.

MSc Examining
1. Oskar Henriksson and Michael Falk, -defended- (Jan 2017 / June 2017): "*Static Vulnerability Analysis of Docker Images.*"
2. Andreas Holmqvist and Fredrik Lycke, -defended- (Jan 2017 / June 2017): "*Vulnerability Analysis of Vagrant Boxes.*"
3. John Bergsten and Konrad Öhman, -defended- (Jan 2017 / June 2017): "*Player Analysis in Computer Games Using Artificial Neural Networks.*"
4. Lucas Holmqvist and Eric Ahlström, -defended- (Jan 2017 / June 2017): "*Comparing Traditional Key Frame Animation Approach and Hybdrid Animation Approach of Humanoid Characters.*"
5. Zeid Baker, Mousa (Nov 2017 / Feb 2018): "*Generation of Artificial Images using a Generative Neural Network*". In collaboration with SONY mobile Sweden.

6. Johan Almeflo –Ongoing- (Nov 2017 / -): "*A comparison of precision between Google ARCore and Apple ARKit*".
7. Raju Banerjee, Open source software developers' motivational factors for refactoring source code.

MSc Reviewing (>35)

Grant Award (Top)

- *Co-investigator:* Ref. PoP 08/186 (University of Ulster- Innovation centre). Start: 17th December 2008- End: 31st July 2009. Title: Identity Cards Employing Steganography. Award: **£7,430**. PI: Dr. Joan Condell.

- *Co-investigator:* Proof of Concept Programme (Invest NI & European Regional Development Fund): Start: October 2009- End: October 2010. Title: Secure Digital Watermarks (SDW): Secure Data Hiding in Image Frames using Steganography. Award: **£77074.20**. PI: Dr. Joan Condell.

- *Co-investigator* (postgraduate studies - second and third cycle courses): The Swedish Knowledge Foundation accepted our proposal for the development and implementation of Network-based education for international positioning (NU 18 - Nätbaserad utbildning för internationell positionering). The project lasted for 3 years (started in Sep 2019). Award: **3 million SEK (~290K €)**. PI: The dean of faculty of computing, Prof. Lars Lundberg.

- *Principal-investigator*: STINT (The Swedish Foundation for International Cooperation in Research and Higher Education) Initiation Grants for Internationalisation. Project title: "**DocPRESERV:** Preserving & Processing Historical Document Images with Artificial Intelligence," duration: 1 year (started in April 2021). Award: **150k SEK.**

- *Principal-investigator* (2022-2028): Human-Centered Intelligent Realities (HINTS), the Swedish Knowledge Foundation has just accepted our project profile proposal Award: 36 **million SEK (~3.4 million €)**. Overall budget with co-financing -Companies and BTH-: 87.5 **million SEK (~8.4 million €)**. Director: Assoc. Prof. Veronica Sundstedt.

Awards (Top)

- Scholarship award (Bachelor of Information Systems)
- Dean List Award for high academic performance during BSc (earned twice)
- Fellowship award from Universiti Teknologi Malaysia (Msc degree).
- Vice Chancellor's Research Studentship from University of Ulster (PhD degree).
- Best Transfer Report of the Faculty of Computing and Engineering (2007). Award given by the University of Ulster in collaboration with McGraw-Hill to 2nd year PhD students. Hilton Hotel on 03-04-2008.
- Best paper award at the 8th International Conference on Information Technology and Telecommunication (2008). The award was given by IET (The Institution of Engineering and Technology). Galway, GMIT, Ireland on 24-October-2008.
- 25K Award for New Entrepreneurs (best project in the high-tech category)
- Best PhD thesis award of the Faculty of Computing and Engineering (2009). The award was in the form of a trophy and £300.
- The Institute of Electrical and Electronics Engineers (IEEE) senior membership award, 2018-02-17 (Certificate).
- ACM Distinguished Speaker (Link, Certificate)

Entrepreneurship (Top)

25K Award for New Entrepreneurs: The award was for the best project in the Hi-Tech category sponsored by Northern Ireland Science Park (NISP), 24th Sept 2009. The event was covered by BBC Northern Ireland (Mrs. Wendy Austin). The project is entitled Secure Digital Watermark (SDW).

URL: http://abbascheddad.net/25K.jpg

ActionSense **Co. Ltd (***formerly known as* **HidInImage** **Co. Ltd) - Company Number. NI612943-:** I am the *co-founder* and one of the *shareholders* of *ActionSense,* a University spin-out company based in the UK. This initiative is trying to exploit our patented technology and encryption methods which enable the encryption and embedding of secret information (text or images) inside other multimedia files using Steganography techniques. Our award-winning Steganography-based hiding solution plays a vital role in securing digital media content. *ActionSense* won the Hi-Tech category at the Belfast 25K Investment awards, 2009.

Media Coverage (Top)

- **SDW's High Watermark puts better security on the cards**

The *Belfast Telegraph* on our project to investigate digital watermarking and how it can be used in various security applications. Link

- **Ulster Experts Explore Digital Secrets**

Uinversity of Ulster piece on work with Kevin Curran, Joan Condell, Peter Devine and Paul Mc Kevitt on investigating digital watermarking and how it can be used to hide personal or sensitive data in photo images, identity cards and other digital media. It was also mentioned as *Next Big Thing* in 4NI. Link

- **Al Jazeera Media Network "***The Expatriates***" -aired on TV 2019/09/08 at 06:30 Doha Time-**

Program meets distinguished expatriates around the world and highlights their rich experience and successes. Image I|| Image II || Videos

External International Collaboration (Top)

- **Research Collaboration (mammography and imaging physics):** Prof. John Shepherd, Department Radiology, the University of California, San Francisco, USA.
- **Research Collaboration and Entrepreneurship (Digital Watermarking)**: Dr. Joan Condell (Computing and Intelligent Systems, University of Ulster, UK).
- **Research Collaboration (Wireless Communications):** Dr. Nasreddine Lagraa, Laboratoire d'Informatique et de Mathématiques, University of Laghouat, Algeria.
- **Industrial/Research Collaboration:** Provided several clients, worldwide, with advanced customized software for their core research/businesses, using pattern recognition algorithms and machine learning techniques.
- **Research Collaboration (Ophthalmology):** Andres Bustamante-Arias, Cornea and Ocular Surface Service, Ophthalmology and Visual Sciences Institute, School of Medicine. Instituto Tecnológico Y De Estudios Superiores De Monterrey, México.
- **Research Collaboration (healthcare technologies):** Centre de Développement des Technologies Avancées (Center for Development of Advanced Technologies), Algeria.
- **Research Collaboration (Digital Forensics):** Massachusetts Institute of Technology (CSAIL: Computer Science & Artificial Intelligence Lab) & New York University, USA.
- **Research Collaboration (Medical Imaging):** School of Artificial Intelligence, Guilin University of Electronic Technology, China and Lady Davis Institute for Medical Research, McGill University, Montreal, Canada.
- **Research Collaboration (Healthcare informatics):** University of Hagen, faculty of Mathematics and Informatics (Multimedia and Internet applications), Germany.
- **Research Collaboration (Historical document analysis- DocPRESERV):** With the Digital Research Center of Sfax, Tunisia. Pontifícia Universidade Católica do Paraná (PUC-PR), Curitiba, Paraná, Brazil. Funded by STINT (The Swedish Foundation for International Cooperation in Research and Higher Education), Sweden.

Professional membership (Top)

- IEEE Society, Senior Member
- ACM, Professional Membership
- IEEE Signal Processing Society, member

- Svenska Sällskapet för Automatiserad Bildanalys (Swedish Society for Automated Image Analysis membership)
- Swedish Bioimaging membership
- SULF: The Swedish Association for University Teachers and Researchers
- The Machine Intelligence Research Labs (MIR Labs) - Scientific network for innovation and research excellence-.

International Advisory Appointments (Top)

Journals (Reviewer)
- IEEE Transactions on Image Processing, Signal Processing Society.
- IEEE Transactions on Information Forensics and Security, IEEE Signal Processing Society.
- IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics.
- IEEE Transactions on Circuits and Systems for Video Technology.
- IEEE Signal Processing Letters.
- IEEE Access
- Signal Processing, Elsevier Science.
- Signal Processing: Image Communication, Elsevier Science.
- Digital Signal Processing, Elsevier Science.
- Journal of Systems and Software, Elsevier Science.
- Information Sciences, Elsevier Science.
- Signal Image and Video Processing, Springer.
- Pattern Recognition Letters, Elsevier.
- Journal of Signal Processing Systems, Springer.
- Journal of Visual Communication and Image Representation, Elsevier Science.
- Academic Radiology, Elsevier Science.
- Information Fusion, Elsevier Science.
- Neurocomputing, Elsevier Science.
- Journal of the Institution of Engineers (India): Series B. Springer.
- PLOS ONE
- Journal of Information Security and Applications
- Journal of Real-Time Image Processing, Springer
- Multidimensional Systems and Signal Processing, Springer.
- International Journal of Image and Graphics, World Scientific.
- Wireless Sensor Network (WSN), Scientific Research Publishing Inc.
- IETE Technical Review, Medknow Publications and Media Pvt Ltd.
- The Imaging Science Journal, the Royal Photographic Society.
- IET Image Processing
- Cryptologia, Taylor & Francis.
- EURASIP Journal on Information Security
- Circuits, Systems & Signal Processing, Springer.
- Journal of Experimental & Theoretical Artificial Intelligence, Taylor & Francis.
- Big Data Research Journal, Elsevier.
- Journal of King Saud University - Computer and Information Sciences, Elsevier
- Frontiers: Machine learning and artificial intelligence

Conferences (organisation and reviewing)
Chair (7)
- Track Chair (Computer Graphics, Vision and Multimedia): International Conference on Advanced Computer Science Applications and Technologies – ACSAT2012.
- Executive Chair: The second Mediterranean Conference on Pattern Recognition and Artificial Intelligence, MedPRAI 2018.
- Session Chair: 2018 Annual BigData@BTH Workshop (https://a.bth.se/bigdata/ws2018/), Blekinge Institute of Technology, Karlskrona, October 11-12, 2018
- Program Chair and PC member: International Conference on Pattern Analysis and Recognition (ICPAR 2019).
- Session Chair 2019 Annual BigData@BTH Workshop, Blekinge Institute of Technology, Karlskrona, Sweden. 2019/10/11-12.

- Session Chair (2): 2019 The 9th International Conference on Image Processing Theory, Tools and Applications IPTA'19.
- Conference Organizing Committee (Publication & Program Chair): the international conference on Intelligent Systems and Pattern Recognition (ISPR'2020), Hammamet, Tunisia, on 16-18 October 2020.

PC member or Reviewer
- Reviewer: International Conference on Digital Information and Communication Technology and its Applications (DICTAP2011), Springer.
- Reviewer: International Conference on Software Engineering and Computer Systems, Springer.
- Reviewer: International Conference on Digital Information Processing and Communications, Springer.
- PC member: ACSAT 2012 (International Conference on Advanced Computer Science Applications and Technologies)
- PC member: ICCCT-2012 (3rd International Conference on Computer and Communication Technology)
- PC member: ICCCT-2014 (5th International Conference on Computer and Communication Technology)
- PC member: SICSA2010 (SICSA PhD Conference)
- Reviewer: WICT 2012(2nd World Congress on Information and Communication Technologies)
- Reviewer: International Conference on Intelligent Systems and Signal Processing, ISSP 2013.
- Reviewer: International Conference on Signal, Image, Vision and their Applications (SIVA'13).
- Reviewer: Scientific Committee: 3rd International Conference on Signal, Image, Vision and their Applications (SIVA'15), www.pimis.net/siva1.
- PC member: MEDPRAI 2016- the 1st Mediterranean Conference on Pattern Recognition and Artificial Intelligence. IAPR/ACM.
- PC member: ICCCCS-2016- International Conference on Computer, Communication and Computational Sciences.
- PC member: International Conference on Man-Machine Interactions (ICMMI 2017). October 3-6, 2017 Cracow, Poland. Springer.
- PC member: MEDPRAI 2018- the 2nd Mediterranean Conference on Pattern Recognition and Artificial Intelligence. IAPR/ACM.
- PC member: ICMMI 2019 International Conference on Man-Machine Interactions. October 2-4, 2019 Cracow, Poland. Springer.
- PC member: SETIT 2019 International Conference on the Sciences of Electronics, Technologies of Information and Telecommunications, Tunisia, October 21-23, 2019, Springer.
- Reviewer (6 papers): IEEE International Symposium on Biomedical Imaging (ISBI 2020), Iowa City, USA. IEEE Signal Processing Society.
- PC member: AVI2020 WORKSHOP: Road Mapping Infrastructures for Artificial Intelligence Supporting Advanced Visual Big Data Analysis. Co-located with the International Conference on Advanced Visual Interfaces (AVI2020). Island of Ischia, 2020, Italy.
- PC member: 4th Mediterranean Conference on Pattern Recognition and Artificial Intelligence (MedPRAI2020), Hammamet (Tunisia), 20 to 22 December 2020.
- PC member: The 2nd International Conference on Computer Science's Complex Systems and their Applications (ICCSA'2021) to be held in Oum El Bouaghi, Algeria, from 25th to 26th May 2021.
- Reviewer: CHSN-2021: International Conference on Computer Vision, High Performance Computing, Smart Devices and Networks Jawaharlal Nehru Technological University Kakinada Kakinada, India, August 20-21, 2021.
- PC member: the international conference on Intelligent Systems and Pattern Recognition (ISPR'2022), Hammamet, Tunisia, 24-26 March 2022.

Invited - PhD Grading Committee Member (Top)

- Invited committee member for PhD defence entitled [in French] "*Détection des adventices par imagerie aérienne*" by M. Dian Bah, the 5th of March 2020. PRISME Laboratory, INSA CVL **- University of Orléans, France**, click here.

- Invited committee member for PhD defence entitled "*Intelligent System for Secure and Robust Image Steganography and Steganalysis*" by Kadhim Inas Jawad, the 1st of July 2020. School of Electrical, Computer and Telecommunications Engineering. **University of Wollongong, NSW. Australia**.

- Invited committee member for PhD defence entitled "*Machine Learning Applications in Healthcare*" by Ana Luiza Dallora Moraes, the 16th of Sep 2020. Department of Health**, Blekinge Institute of Technology, Sweden**.

- Invited committee member for PhD defence entitled "*Deep Learning Approach for Semantic Segmentation of Pathological Images*" by Yanbo FENG, the 1st of April 2022. Ecole Doctorale Mathematiques, Informatique, Physique Theorique et Ingenierie des Systemes **- INSA Centre Val de Loire, France**.

Invited Talks (Top)

Invited Lecture (6 January 2014): Delivered a talk entitled: "Digital Image Steganography" at the "Laboratoire d'Informatique et de Mathématiques, University of Laghouat, Algeria."

Invited Keynote Speech (**23-23 November 2016):** Invited as a keynote speaker at the Mediterranean Conference on Pattern Recognition and Artificial Intelligence. Speech title: "Recent Trends in Image Processing from Medical Diagnosis to Document Analysis: Applications and Challenges." Click here.

Invited Lecture (17 February 2017): Delivered a lecture to PhD students entitled: "Digital Image Processing" at Umeå University, Sweden. The lecture was a part of the course Bioimaging 1.5 ECTS; 13 - 17 February 2017.

Guest Lecture (26 May 2017): Delivered a lecture to MSc students entitled: "2D Data Science" at the department of Creative Technologies, Blekinge Institute of Technology, Sweden. The lecture was a part of the course DV2545 (Advanced Topic in Computing).

Guest Lecture (23 Nov 2017 & 12 Nov 2018): Delivered a lecture to MSc students entitled: "Image Processing and Analysis in Data Science" at the department of Creative Technologies, Blekinge Institute of Technology, Sweden. The lecture was a part of the course DV2545 (Advanced Topic in Computing).

Invited Keynote Speaker (**11-12 December 2018):** Invited as a keynote speaker at the "*Journées d'étude sur L'Intelligence Artificielle et ses Applications*" a l'université d'Oum El Bouaghi, Algeria. Speech title: "Image Processing in Data Science: Current prospects and future challenges." Click here.

Invited Plenary Speaker (**16 October 2020):** Invited as a keynote speaker at the "*The international conference on Intelligent Systems and Pattern recognition (ISPR'20)*", Hammamet, Tunisia, 16-18 October 2020. Speech title: "Image Processing in Cross-disciplinary Research." Click here.

Invited Keynote Speaker (**17-18 Dec 2021):** Invited as a keynote speaker at the "*The 5th Mediterranean Conference on Pattern Recognition and Artificial Intelligence* (*MedPRAI 2021*)*", Istanbul, Turkey. Speech title: "Medical Image Analysis: a computational approach in diabetes research." Click here.

Invited Speaker (**12-15 June 2022):** Invited as a speaker at the IVAR 2022 Spring School, Université Oran 1, Oran, Algeria.

Administration and Management (Top)

- A member in the board of management of the BigData@BTH project (2015-2020).
- Group leader focusing on big data analytics for image processing (2017-2020).
- Group member in the AIDA: AI and Data Analytics Lab (2020- present).

Certificates

I gained two certificates from *Active Media Innovation SDN. BHD* (A private company based in Kuala Lumpur) upon the completion of a course taken with the following details:
1- 16 March 2004 MATLAB with Image Processing
2- 18 March 2004 MATLAB with GUI

Publications

ORCID (Open Researcher and Contributor ID): 0000-0002-4390-411X

Google Citation indices (*)

	All	Since 2017
Citations	3502	1790
h-index	23	18
i10-index	31	25

(*) Available from Google Scholar citation, accessed on 2022-07-03.

Open Access Datasets (3)

- ARDIS Data Sets of Handwritten Digits, available freely from here.
- Mini-DDSM Data Set of Mammography Images, available freely from here
- SHIBR-The Swedish Historical Birth Records: A Semi-Annotated Dataset, available freely from here

Free Software Tools (all available here) (5)

- *CASAM* (Computer Aided Statistical Assessment of Mammograms): In response to RECIPIENTs request for the material (1/ Software package for implementation of the mean intensity of pectoral muscle (MIP) described in Cheddad et al., Cancer Epidemiology, Biomarkers & Prevention (CEBP), 2015, PMID: 25870223, and Cheddad et al., (CEBP), 2014, PMID: 24722754 2/ Software package for implementation of area and volumetric density measurement as presented in Cheddad et al., PLoS One, 2014, PMID: 25329322).

- *DSPOPT* (Digital Signal Processing for Optical Projection Tomography): This is a software package that is described in: Abbas Cheddad, Christoffer Svensson, James Sharpe, Fredrik Georgsson and Ulf Ahlgren, (2012), "Image Processing Assisted Algorithms for Optical Projection Tomography", IEEE Transactions on Medical Imaging, Volume: 31 Issue:1, pp:1-15. DSPOPT is now provided free of charge to the research community for non-commercial use. Several research centres in Australia (Monash University), Finland (Oulu University), UK (MRC University Unit for Human Genetics, University of Edinburgh- and Imperial College London), Denmark (Novo Nordisk Company), Czech Republic (the Academy of Sciences) and Sweden (Umeå University and Lund University) are now using this software, integrating it into commercial OPT scanners in their respective laboratories.

- *DTBIM* (Delaunay triangulation based binary image morphing) is a new way to dilate binary objects (shapes, digits, etc.). Not meant to replace *bwmorph*. Its underlying algorithm is fully described in: Cheddad A. "Structure Preserving Binary Image Morphing using Delaunay Triangulation." Pattern Recognition Letters, (2017) 85, pp. 8-14. Elsevier.

- *Image Segmentation Algorithm*: This function applies the Delaunay-based image segmentation, which is a fully automated process that does not require initial estimate of number of clusters. Its underlying algorithm is fully described in: A. Cheddad, D. Mohamad and A. Abd Manaf, "Exploiting Voronoi diagram properties in face segmentation and features extraction," Pattern Recognition, 41(12) (2008)3842-3859, Elsevier Science. A. Cheddad, J. Condell, K. Curran and P. Mc Kevitt. On Points Geometry for Fast Digital Image Segmentation. The 8th International Conference on Information Technology and Telecommunication IT&T 2008, Ireland 23 – 24 October 2008, pp: 54-61.

- *BCI* (Box-Cox for Images) In a general sense, machine/deep learning models may perform better when feature distributions are approximately normal and when feature scales are similar. On the other

hand, a disparity in scale may increase computational complexity or even prevent convergence for gradient-based models. This disparity also becomes significant for Euclidean distance base algorithms. How does this hold for 2-dimensional data, namely, digital images? This what this paper explores. For this, we explore the extension of the Box-Cox transformation (power law) to digital images and its effect on the classification performance of some algorithms. Its underlying algorithm is fully described in: - A. Cheddad, "On Box-Cox Transformation for Image Normality and Pattern Classification," IEEE Access, Vol.8, pp.154975-154983, 2020.

Higher Education Pedagogy Publication

Abbas Cheddad and Christian Nordahl, "*Distance Teaching Experience of Campus-based Teachers at Times of Pandemic Confinement*" Oral presentation at Lärarlärdom (the Future of Academic Teaching) 18 August 2021, Sweden (Online event), also sent to a Journal.

Books (1)

Abbas Cheddad. "Digital Image Steganography: Concepts, Algorithms and Applications". Publisher: VDM Verlag Dr. Müller (December 4, 2009), ISBN-13: 978-3639214567.

Invited Book Chapters (1)

- A. Cheddad, "Digital Forgery". In Albanese, Jay S., Editor-in-chief, *Encyclopedia of Criminology and Criminal Justice*, 2014. New Jersey: John Wiley & Sons, Inc. DOI: 10.1002/9781118517383.wbeccj132

Patent Granted (2)

- Patent Number 13125799 (granted on 11 December 2014), "An Encryption Method" University of Ulster, United Kingdom. Click here.

- Patent Number 20110299771 (granted on 12 Nov 2013), "Method for Skin Tone Detection" University of Ulster, United Kingdom. Click here.

Editorial for Pattern Recognition Letters, Elsevier (2021): Lead guest editor for a special section on topical collection on intelligent systems and pattern recognition: *Introduction to the special section on intelligent systems and pattern recognition (SS: ISPR20)*, Volume 156, April 2022, Pages 190-19. read the editorial here.

Editorial for Int. J. Computational Systems Engineering, Inderscience Enterprises Ltd (2021): Guest editor for a special issue on: *Recent Advances in Intelligent Systems and Pattern Recognition Vol. 6, No. 5, 2021*, read the editorial here.

Peer-reviewed Papers in Scientific Journals (32)

1. Hahn, M., Nord, C., van Krieken. P. P., Berggren, P., Ilegems, E., **Cheddad, A.** & Ahlgren, U. "Quantitative 3D OPT and LSFM datasets of pancreata from mice with streptozotocin induced diabetes;" Accepted in *Nature - Scientific Data* Journal, xx, xxxx–xxxx (2022), Springer.

2. Siva Krishna Dasari, **Abbas Cheddad**, Jonatan Palmquist, Lars Lundberg. "Clustering-based Adaptive Data Augmentation for Class-imbalance in Machine Learning (CADA): Additive Manufacturing Use-case," *Neural Computing & Applications*, xx, xxxx–xxxx (2022), Springer. https://doi.org/10.1007/s00521-022-07347-6.

3. Wagenpfeil S, Mc Kevitt P, Cheddad A, Hemmje M. Explainable Multimedia Feature Fusion for Medical Applications. *Journal of Imaging* (*Special Issue Intelligent Strategies for Medical Image Analysis*). 2022; 8(4):104. https://www.mdpi.com/2313-433X/8/4/104

4. **Abbas Cheddad**, Hüseyin Kusetogullari, Agrin Hilmkil, Lena Sundin, Amir Yavariabdi, Mustapha Aouache, Johan Hall; "SHIBR-The Swedish Historical Birth Records: A Semi-Annotated

Dataset," *Neural Computing & Applications*, 33, 15863–15875 (2021), Springer. DOI: 10.1007/s00521-021-06207-z

5. Andres Bustamante-Arias, **Abbas Cheddad**, Julio Cesar Jimenez-Perez, Alejandro Rodriguez-Garcia, "Digital Image Processing and Development of Machine Learning Models for the Discrimination of Corneal Pathology: An Experimental Model." *Photonics*, 2021, vol (8)(4):118.

6. A. Chaddad, M.J. Kucharczyk, **A. Cheddad**, S.E Clarke, L. Hassan, S. Ding; S. Rathore, M. Zhang, Y. Katib, B. Bahoric, G. Abikhzer, S. Probst and T. Niazi. "Magnetic Resonance Imaging based Radiomic Models of Prostate Cancer: A narrative review," *Cancers*, 13(3)2021. MDPI (Basel, Switzerland). IF: 6.126 (Q1).

7. Xusheng Liang, **Abbas Cheddad**, Johan Hall, "Comparative Study of Layout Analysis of Tabulated Historical Documents," *Big Data Research*, vol 24, 100195, 15 May 2021, Elsevier.

8. **A. Cheddad,** "On Box-Cox Transformation for Image Normality and Pattern Classification," *IEEE Access*, vol. 8, pp. 154975-154983, 2020, IEEE. DOI: 10.1109/ACCESS.2020.3018874.

9. S. K. Dasari, **A. Cheddad**, P. Andersson, "Predictive Modelling to Support Sensitivity Analysis for Robust Design in Aerospace Engineering." *Structural and Multidisciplinary Optimization*, 61 (5) 2177-2192, 2020, Springer. DOI: 10.1007/s00158-019-02467-5.

10. Huseyin Kusetogullari, Amir Yavariabdi, **Abbas Cheddad**, Håkan Grahn and Johan Hall, "ARDIS: A Swedish Historical Handwritten Digit Dataset," *Neural Computing and Applications*, 32(21)16505-16518, 2020. Springer. DOI: 10.1007/s00521-019-04163-3. Click here.

11. Rafik Bouhennache, Toufik Bouden, Abdmalik Taleb-Ahmed & **Abbas Cheddad**, (2018). "A new spectral index for the extraction of built-up land features from Landsat 8 satellite imagery." *Geocarto International*, 34 (14) 1531-1551. Taylor & Francis. Click here.

12. Ola Spjuth, Andreas Karlsson, Mark Clements, Keith Humphreys, Emma Ivansson, Jim Dowling, Martin Eklund, Alexandra Jauhiainen, Kamila Czene, Henrik Grönberg, Pär Sparén, Fredrik Wiklund, **Abbas Cheddad**, þorgerður Pálsdóttir, Mattias Rantalainen, Linda Abrahamsson, Erwin Laure, Jan-Eric Litton, and Juni Palmgren. "E-Science technologies in a workflow for personalized medicine using cancer screening as a case study." *Journal of the American Medical Informatics Association*, 24(5): 950-957, 2017. doi: 10.1093/jamia/ocx038. Oxford University Press. PMID: 28444384. Impact Factor: 3.428.

13. **Cheddad A.** "Structure Preserving Binary Image Morphing using Delaunay Triangulation." *Pattern Recognition Letters*, (2017) 85, pp. 8-14. Elsevier. An official publication of the International Association for Pattern Recognition.

14. Fredrik Strand, Keith Humphreys, **Abbas Cheddad,** et, al. "Novel mammographic image features differentiate between interval and screen-detected breast cancer: a case-case study." *Breast Cancer Research* (2016) 18:100. DOI 10.1186/s13058-016-0761-x. Springer.

15. Brik B, Lagraa N, Lakas A and **Cheddad A**. DDGP: Distributed Data Gathering Protocol for vehicular networks. *Vehicular Communications*, 4(2016) 15-29. Elsevier.

16. **Cheddad A**, Czene K, Hall P and Humphreys K. Pectoral muscle attenuation as a marker for breast cancer risk in Full Field Digital Mammography. *Cancer Epidemiology, Biomarkers & Prevention (CEBP),* 24(6)(2015) 985–991. American Association for Cancer Research. PMID: 25870223.

17. Brik B, Lagraa N, Lakas A, Cherroun H and **Cheddad A**. "ECDGP: extended cluster-based data gathering protocol for vehicular networks," *Wireless Communications and Mobile Computing*, 16 (10)(July 2016), pp: 1238–1255. John Wiley & Sons, Ltd. DOI: 10.1002/wcm.2591.

18. Holm J, Humphreys K, Li J, Ploner A, **Cheddad A,** Eriksson M, Törnberg S, Hall P, Czene K. "Risk factors and tumor characteristics of interval cancers by mammographic density," *Journal of Clinical Oncology*, 33(9)(2015)1030-1037. PMID: 25646195.

19. **Abbas Cheddad,** Kamila Czene, Mikael Eriksson, Jingmei Li, Douglas Easton, Per Hall and Keith Humphreys. "Area and volumetric density estimation in processed full-field digital mammograms for risk assessment of breast cancer," *PLoS One*, 9 (10)(2014) 1-10. Click here.

20. **Abbas Cheddad**, Kamila Czene, John Shepherd, Jingmei Li, Per Hall, Keith Humphreys. "Enhancement of mammographic density measures in breast cancer risk prediction," *Cancer Epidemiology, Biomarkers & Prevention (CEBP)*, 23(7)(2014) 1314-1323. American Association for Cancer Research. PMID: 24722754. Click here.

> *Reviewer's comment: "This manuscript presents an interesting and novel approach to enhance mammographic density assessment from 2-dimensional images. It has been long been considered a weakness that the common assessment methods using film mammograms ignore the third dimension of breast thickness. Therefore, this paper makes a new contribution to the field of mammographic density research..."*

21. Anna Eriksson, Christoffer Svensson, Andreas Hornblad, **Abbas Cheddad**, Elena Kostromina, Maria Eriksson, Nils Norlin, Antonello Pileggi, James Sharpe, Fredrik Georgsson, Tomas Alanentalo and Ulf Ahlgren. "Near Infrared Optical Projection Tomography for Assessments of β-cell Mass Distribution in Diabetes Research." *J. Vis. Exp* 2013. (71), e50238. PMID: 23353681.

22. **Abbas Cheddad**, Christoffer Nord, Andreas Hörnblad, Renata Prunskaite-Hyyryläinen, Maria Eriksson, Fredrik Georgsson, Seppo J. Vainio, and Ulf Ahlgren. "Improving signal detection in emission optical projection tomography via single source multi-exposure image fusion." *Optics Express* 2013. 21(14)16584-16604. PMID: 23938510.

23. **Abbas Cheddad**, Christoffer Svensson, James Sharpe, Fredrik Georgsson and Ulf Ahlgren. "Image Processing Assisted Algorithms for Optical Projection Tomography." *IEEE Transactions on Medical Imaging*, January 2012, 31(1)1-15. PMID: 21768046. Click here. *It was featured "In the news", TrAC Trends in Analytical Chemistry, Volume 30, Issue 10, Pages v-xi (November 2011) Edited by Janusz Pawliszyn.*

24. Andreas Hörnblad, **Abbas Cheddad** and Ulf Ahlgren, "An improved protocol for Optical Projection Tomography Imaging Reveals Lobular Heterogeneities in Pancreatic Islet and β-Cell Mass Distribution." *Islets*, 3(4)(2011) 1-5. PMID: 21633198.

25. Pratheepan, Y., Condell, J.V., Curran, K., **Cheddad, A.,** Mc Kevitt, P. "A Dynamic Threshold Approach for Skin Tone Detection in Color Images." *Int. J. Biometrics*, 4(1)(2012)38-55. Inderscience.

26. Pratheepan, Y., Condell, J.V., Curran, K., **Cheddad, A.**, Mc Kevitt, P., "An Improved Self-Embedding Algorithm: Robust Protection against Lossy Compression Attacks in Digital Image Watermarking." *Image Processing and Communications*, 15(1)(2010) 47-59.

27. **A. Cheddad**, J. Condell, K. Curran and P. Mc Kevitt, "A Hash-based Image Encryption Algorithm." *Optics Communications*, 283(6)(2010) 879-893. Elsevier Science.

28. **A. Cheddad**, J. Condell, K. Curran and P. Mc Kevitt, "Digital Image Steganography: Survey and Analyses of Current Methods." *Signal Processing* 90 (3) (2010) 727-752, Elsevier Science. *The most cited article published since 2009 in Signal Processing, Elsevier.*

29. **A. Cheddad**, J. Condell, K. Curran and P. Mc Kevitt, "Information hiding-enabled data transmission framework." *International Journal of Information Studies*, 1(3)(2009)159-164.

30. **A. Cheddad**, J. Condell, K. Curran and P. Mc Kevitt, "A Skin Tone Detection Algorithm for an Adaptive Approach to Steganography." *Signal Processing* 89 (12) (2009) 2465-2478, Elsevier Science. *Please contact me for a link to download the ground truth of Suzie.avi sequence.*

31. **A. Cheddad**, J. Condell, K. Curran and P. Mc Kevitt. "A Secure and Improved Self-Embedding Algorithm to Combat Digital Document Forgery." *Signal Processing* 89 (12) (2009) 2324-2332, Elsevier Science. Special Issue: Visual Information Analysis for Security.

32. **A. Cheddad**, D. Mohamad and A. Abd Manaf. "Exploiting Voronoi Diagram Properties in Face Segmentation and Features Extraction." *Pattern Recognition* 41 (12) (2008) 3842-3859, Elsevier Science.

Refereed Conference/Workshops (highlighted) Publications (39)

1. H. Benhamza, A. Djeffal and A. Cheddad, "Image forgery detection review," 2021 International Conference on Information Systems and Advanced Technologies (ICISAT), 2021, pp. 1-7, IEEE, doi: 10.1109/ICISAT54145.2021.9678207. https://ieeexplore.ieee.org/abstract/document/9678207

2. A. Duttenhöfer, S. Wagenpfeil, C. Nawroth, A. Cheddad, P. McKevitt, and M. Hemmje, "Supporting Argument Strength by Integrating Semantic Multimedia Feature Detection with Emerging Argument Extraction," 3rd Workshop on Argument Strength (ArgStrength'21), Oct 11-13, 2021.

3. S.K. Dasari, A. Cheddad, L. Lundberg, J. Palmquist. "Active Learning to Support In-situ Process Monitoring in Additive Manufacturing." In Proc. 20th IEEE International Conference on Machine Learning and Applications (IEEE-ICMLA 21) December 13-16, 2021.

4. Mengqiao Zhao, Andre G. Hochuli and Abbas Cheddad, "End-to-End Approach for Recognition of Historical Digit Strings". In: Lladós J., Lopresti D., Uchida S. (eds) Document Analysis and Recognition – ICDAR 2021. 16th International Conference on Document Analysis and Recognition. Lecture Notes in Computer Science (LNCS), vol 12823, pp 595-609. Springer, Cham. https://doi.org/10.1007/978-3-030-86334-0_39.

5. C.D. Lekamlage, F. Afzal, E. Westerberg and A. Cheddad, "Mini-DDSM: Mammography-based Automatic Age Estimation," in proceedings of the 3rd International Conference on Digital Medicine and Image Processing (DMIP 2020), Kyoto, Japan, November 06-09, 2020, ACM, pp: 1–6. https://doi.org/10.1145/3441369.3441370.

6. S. K. Dasari, A. Cheddad and J. Palmquist, "Melt-Pool Defects Classification for Additive Manufactured Components in Aerospace Use-Case," 2020 7th International Conference on Soft Computing & Machine Intelligence (ISCMI), Stockholm, Sweden, 2020, pp. 249-254, doi: 10.1109/ISCMI51676.2020.9311555.

7. Cheddad, A., "Machine Learning in Healthcare: Breast Cancer and Diabetes Cases." In: Reis T., Bornschlegl M.X., Angelini M., Hemmje M.L. (eds) Advanced Visual Interfaces. Supporting Artificial Intelligence and Big Data Applications. AVI-BDA 2020, ITAVIS 2020. Lecture Notes in Computer Science (LNCS), vol 12585, pp. 125-135, 2021. Springer, Cham. https://doi.org/10.1007/978-3-030-68007-7_8.

8. A.A. Bustamante, A. Cheddad and A. Rodriguez-Garcia, "Digital Image Processing and Development of Machine Learning Models for the Discrimination of Corneal Pathology: An Experimental Model," Accepted for oral presentation at the American Academy of Ophthalmology's annual meeting (AAO 2019), San Francisco Oct 12-15. Acceptance rate (6%). https://www.aao.org/annual-meeting

9. Wu Qian and Abbas Cheddad. "Segmentation-based Deep Learning Fundus Image Analysis," Accepted for oral presentation at the 9th International Conference on Image Processing Theory, Tools and Applications IPTA 2019. Nov 6-9, 2019, Istanbul, Turkey.

10. Dasari S.K., Cheddad A., Andersson P. (2019) Random Forest Surrogate Models to Support Design Space Exploration in Aerospace Use-Case. In: MacIntyre J., Maglogiannis I., Iliadis L., Pimenidis E. (eds) Artificial Intelligence Applications and Innovations. AIAI 2019. IFIP Advances in Information and Communication Technology, vol 559, pp 532-544. Springer.

11. Abbas Cheddad, Huseyin Kusetogullari and Håkan Grahn, (2017). "Object Recognition using Shape Growth Pattern," 10th *International Symposium on Image and Signal Processing and Analysis* (ISPA 2017). 18-20th September 2017, pp.47-52, Ljubljana, Slovenia.

12. V. M Devagiri and A. Cheddad. "Splicing Forgery Detection and the Impact of Image Resolution," 5th International Workshop on Systems Safety and Security (IWSSS 2017). Targoviste, România, 29-30 June 2017.

13. Cheddad, A. "Towards Query by Text Example for Pattern Spotting in Historical Documents." 7th International Conference on Computer Science and Information Technology (CSIT'16), July 13-14, 2016, IEEE Computer Society.

14. Akser, M., Bridges, B., Campo, G., Cheddad, A. et al. (2017). "SceneMaker: Creative Technology for Digital StoryTelling". In: Brooks A., Brooks E. (eds) Interactivity, Game Creation, Design, Learning, and Innovation. ArtsIT 2016, DLI 2016. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 196. Springer, Cham. DOI: 10.1007/978-3-319-55834-9_4.

15. Pratheepan Yogarajah, Joan Condell, Kevin Curran, Paul Mc Kevitt and Abbas Cheddad. (2010) "Video Authentication: A Self Embedding Steganography approach". International Machine Vision and Image Processing Conference, IMVIP'10, 8-10 September 2010, Ireland.

16. Yogarajah Pratheepan J. Condell, K. Curran, P. Mc Kevitt and Abbas Cheddad. "An Improved Self-Embedding Algorithm: Digital Content Protection against Compression Attacks in Digital Watermarking". 2nd International Conference on Image Processing and Communications, Poland. 20-23

October 2010. Also appears as a monograph by Springer-Verlag in Advances in Soft Computing Series book, Volume 84, Image Processing and Communications Challenges 2, Pages 59-66.

17. Pratheepan Yogarajah, Joan Condell, Kevin Curran, Abbas Cheddad and Paul Mc Kevitt, "A dynamic threshold approach for skin segmentation in color images", IEEE International Conference on Image Processing, ICIP 2010, Hong Kong, 26-29 Sept. 2010, pp: 2225-2228.

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19. A. Cheddad, Condell, J.V., Curran, K.J., McKevitt, P, "A New Colour Space for Skin Tone Detection". IEEE International Conference on Image Processing, ICIP 2009. 7-10 Nov. 2009, pp. 497 - 500. IEEE Signal Processing Society. Egypt.

20. A. Cheddad, J. Condell, K. Curran and P. Mc Kevitt, "Data Hiding Tools for Digital Forensic Experts," In: Proceedings of Digital Forensics, Security and Law, May 20-22, 2009, Burlington, Vermont, USA, ISSN: 1931-7379, ADFSL (Association of Digital Forensics, Security and Law), pp: 111-113.

21. A. Cheddad, J. Condell, K. Curran and P. Mc Kevitt, "A New Digital Image Security Strategy: Steganoflage". 15th International Symposium on Electronic Art (ISEA 2009), 23rd August - 1st September 2009, Belfast, Northern Ireland, 2009.

22. A. Cheddad, J. Condell, K. Curran and P. Mc Kevitt. "Steganoflage- A Novel Approach to Image Steganography". The 8th International Conference on Information Technology and Telecommunication IT&T 2008, Doctoral Symposium, Galway Mayo Institute of Technology, Galway, Ireland 23rd-24th October 2008, pp:191-194.

23. A. Cheddad, J. Condell, K. Curran and P. Mc Kevitt. "On Points Geometry for Fast Digital Image Segmentation". The 8th International Conference on Information Technology and Telecommunication IT&T 2008, Galway Mayo Institute of Technology, Galway, Ireland 23rd-24th October 2008, pp: 54-61. *Best paper award. Awarded by IET (The Institution of Engineering and Technology). Certificate and a prize of € 300.*

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26. Curran, K. Condell, J., Cheddad, A., Mc Creadie, K. and Maguire, L.M., Issues of Privacy & Surveillance, In Proceedings of the 5th International Conference on Technology, Knowledge and Society. 30-Jan to 1-Feb 2009. Huntsville, Alabama, USA.

27. A. Cheddad, J. Condell, K. Curran & P. Mc Kevitt. (2008). "Skin Tone Based Steganography in Video Files Exploiting the YCbCr Colour Space". Proc of the 2008 IEEE International Conference on Multimedia and Expo, Hannover, Germany. pp.905-909. June 23-26, 2008.

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29. A. Cheddad, J. Condell, K. Curran & P. Mc Kevitt. (2008). "Biometric Inspired Digital Image Steganography". In the proceedings of the 15th Annual International Conference and Workshops on the Engineering of Computer-Based Systems (ECBS'08). pp. 159-168. I won a travel grant from LERO; the Irish Software Engineering Research Centre.

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32. A. Cheddad, R.A. Badlishah, "NESROBOT: A 3 in 1 Vision System Algorithm for Robot Navigation". International Conference on Man-Machine Systems -ICOMMS'2006, Langkawi Islands, Malaysia 15th - 16th September 2006.

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34. A.M. Zeki, A. Farshid Ghyasi, M.S. Zakaria, Maram Mujahid, Norazlina Zainul, A. Cheddad and M. Zubayr, "Design and Implementation of a Voronoi Diagrams Generator using Java" . International Arab Conference on Information Technology, 12-15 Dec 2004, Algeria.

35. A. Cheddad, D. Mohamad and A.A. Manaf, "A Novel Method for Face Segmentation and Face Features Extraction based on Voronoi Diagram". International Arab Conference on Information Technology, 12-15 Dec 2004, Algeria.

36. A. Cheddad, N. Zainul and M. Mujahid, "Developing and Testing Online Survey Instrument," 2nd Real-Time Technology and Applications Symposium (RENTAS 2004), Malaysia: Nov 24-25, 2004.

37. D. Mohamad, A. Cheddad and A.A. Manaf, "A New Algorithm for Face Location and Face Features Extraction based on Voronoi Diagram and Parametric Contour," International Conference on Information & Communication Technologies: From Theory to Applications. Damascus. Syria: April 19 - 23, 2004.

38. A. Cheddad, D. Mohamad and A.A. Manaf, "An Efficient Hybrid Algorithm for Face Features Extraction Based on Contour linearization and Voronoi diagram". Panitia Seminar Nasional Informatika 2004-SNI2004. Universitas Ahmad Dahlan, Indonesia.

39. A. Cheddad and A.M. Zeki, "Template Matching and its Industrial Applications". Proceedings of the 19th International Conference on CAD/CAM, Robotics and Factories of the Future. Kuala Lumpur. Malaysia: Tuesday, 22nd July 2003.