

CURRICULUM VITAE

Dr. Ing. Aicha BEN MAKHLOUF

PERSONAL DATA

Date of Birth: 31/12/1992

Nationality: Tunisian

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Expertise and research interests

Computer Aided Design; 3D surface reconstruction; Geometric Modeling; Additive Manufacturing; Augmented Reality in medical surgery; Biomechanical modeling

ACADEMIC QUALIFICATIONS

2016 - 2020 PhD in Computer Science, University of Sousse, Tunisia

Subject title: The development of algorithms for the reconstruction of a geometric model from a deformed 3D mesh

Committee: Prof. Mohamed Ali MAHJOUB (Supervisor), Prof. Borhen LOUHICHI, Prof. Dominique DENEUX

Grade: Pass with very honorable

2011 – 2016 Engineering degree in Software Engineering

Higher Institute of Applied Sciences and Technology of Sousse (ISSATSo).

2010 – 2011 Bachelor's Degree in Computer Science

Monji Slim High School Sfax, Tunisia

ACADEMIC POSITIONS

2020 - Today: Contract Assistant Professor at the Higher Institute of Applied Sciences and Technology of Sousse (Doctor)

Courses Taught:

- Algorithms and data structures 1
- Algorithms and data structures 2
- Development of web portals and collaborative working tools
- Object oriented programming paradigm (C++)
- Programming course (C language)

2017 - 2020: Contract Assistant Professor at the Higher Institute of Applied Sciences and Technology of Sousse (PhD Student)

Courses Taught:

- Foundations of artificial intelligence
- Website development
- Human Machine Interface (HMI)
- Architecture of computers

PUBLICATIONS

Journal Articles

[1] **Aicha Ben Makhlouf**, Borhen Louhichi, Mohamed Ali Mahjoub and Dominique Deneux, “Reconstruction of a CAD model from the deformed mesh using B-spline surfaces”, *International Journal of Computer Integrated Manufacturing*, 2019, vol. 32, no 7, p. 669-681.

Published Online: 10 April 2019 (*ISI Thomson, IF: 2.861, Q2*)

<https://doi.org/10.1080/0951192X.2019.1599442>

[2] Ahmed Hamieh, **Aicha Ben Makhlouf**, Borhen Louhichi and Dominique Deneux, “A BIM-based method to plan indoor paths”, *Automation in Construction*, 2020, vol. 113, p. 103120, ISSN 0926-5805.

Published Online: 2 March 2020 (*ISI Thomson, IF: 7.7, Q1*)

<https://doi.org/10.1016/j.autcon.2020.103120>

[3] Anis korbi, Amira Soued, **Aicha Ben Makhlouf**, Mortadha Graa, Mehdi Tlija, Borhen Louhichi, “A tolerance analysis model of CAD assemblies considering thermo-mechanical deformations of non-rigid parts”, *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 2021, p. 1-16.

Published Online: 18 November 2021 (Springer, Q2)

<https://doi.org/10.1007/s12008-021-00793-x>

Accepted Journal Articles

[1] Ameni Eltaief, **Aicha Ben Makhlouf**, Sabrine Ben Amor, Sébastien Remy, Borhen Louhichi, Benoit Eynard, “Engineering Change Risk Assessment: quantitative and qualitative change characterization”, *Computers in Industry* (ISI Thomson, IF: 7.635, Q1)

Submitted Journal articles

[1] **Aicha Ben Makhlouf**, Ameni Eltaief, Anis Korbi, Ahmed El Ayeb, Mehdi Tlija, Borhen Louhichi and Yupiter HP Manurung, “The build orientation selection in additive manufacturing based on realistic modelling of part features errors”, *Journal of Manufacturing Science and Engineering*.

Under Review: 20 October 2021 (ISI Thomson, IF: 3.033, Q1)

[2] Nessrine Elloumi, **Aicha Ben Makhlouf**, Ameni Eltaief, Borhen Louhichi, and Dominique Deneux, “Improvement of the B-Spline surface reconstruction for a deformed CAD model rebuilding”, *Computer Aided Geometric Design*. Submitted: January 2022 (ISI Thomson, IF: 1.382, Q2)

Conference Articles

[1] **Aicha Ben Makhlouf**, Borhen Louhichi, Mohamed Ali Mahjoub and Gérard Subsol, “Approach for CAD model Reconstruction from a deformed mesh”, 14th International Conference on Computer Systems and Applications (AICCSA), Hammamet, Tunisia, 2017, p. 327-333.

Published Online: 12 March 2018 (Class C)

<https://doi.org/10.1109/AICCSA.2017.181>

[2] **Aicha Ben Makhlouf**, Borhen Louhichi, Dominique Deneux and Mohamed Ali Mahjoub, “Reconstruction of the CAD Model using TPS Surface”, 23rd International Conference Information Visualisation (IV), Paris, France, 2 - 5 July 2019, p. 417-424.

Published Online: 26 August 2019 (Class B)

<https://doi.org/10.1109/IV.2019.00077>

[3] Ibtissem Jbira, **Aicha Ben Makhlouf**, Borhen Louhichi, Antoine Tahan, Mohamed Ali Mahjoub and Dominique Deneux, “A Comparative Study of Extraction Cylinder Features in Industrial Point Clouds”, 23rd International Conference Information Visualisation (IV), Paris, France, 2 - 5 July 2019, p. 431-441.

Published Online: 26 August 2019 (Class B)

<https://doi.org/10.1109/IV.2019.00079>

[4] **Aicha Ben Makhlouf**, Nessrine Elloumi, Borhen Louhichi and Dominique Deneux, “Approach for CAD model reconstruction basing on 3D points insertion and surface approximation”, 25th International Conference Information Visualisation (IV), Online, 5 - 9 July 2021, p. 310-319. **Published Online:** 28 October 2021 (Class B)

<https://doi.org/10.1109/IV53921.2021.00057>

[5] Nessrine Elloumi, **Aicha Ben Makhlouf**, Borhen Louhichi and Dominique Deneux, “Towards a building techniques of a BREP model starting from a meshed surface”, International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE 2021), Online, 17-20 August 2021, vol. 85376, p. V002T02A006.



Published Online: 17 November 2021

<https://doi.org/10.1115/DETC2021-71724>

Contribution in magazines

Aicha BEN MAKHLOUF, « Ma thèse en deux pages », MICADO No.5 – Novembre 2020.

REFEREING ACTIVITY

-  Reviewer in the international journal “Mathematical Problems in Engineering” (Impact Factor 1.305, Q3)
-  Reviewer in the conference “9th International Conference on Sciences of Electronics, Technologies of Information and Telecommunication (2022 IEEE SETIT)”.

CURRENT RESEARCH PROJECTS

Augmented Reality in medical surgery (www.am-g.tn)

Collaborator: Sahloul Hospital, Sousse, Tunisia.

Additive Manufacturing

Collaborator: École de Technologie Supérieure (ETS), Montréal, Canada.

SUPERVISOR

Supervisor of End of studies’ project of the engineering cycle

Student: Abdelkader Komti

Institute: Higher Institute of Applied Sciences and Technology of Sousse

Subject: Potential applications of Convolutional Neural Networks for Civil Engineering and Computer Aided Design methods.

Co-supervisor of Master’s project

Student: Anass Ayed

Institute: Higher Institute of Applied Sciences and Technology of Sousse

Subject: Development Of Methods And Algorithms Based On Augmented Reality For Real-Time Simulation Of The Non-Rigid Model Of An Organ During Liver Surgery.

INTERNSHIPS

Research internships:

01/09/2019 – 30/10/2019: Thesis internship at the Polytechnic University of Hauts-de-France, France

Supervised by: Prof. Dominique DENEUX

Laboratory: Laboratory of Automation, Mechanics and Industrial and Human Computer Science (LAMIH)

Subject: Contribution to the BIMOV project: Automatic planning of paths inside buildings based on a BIM model.

01/02/2019 – 05/07/2019: Thesis internship at the Polytechnic University of Hauts-de-France, France (Erasmus+ mobility)

Supervised by: Prof. Dominique DENEUX

Laboratory: Laboratory of Automation, Mechanics and Industrial and Human Computer Science (LAMIH)

Subject: Reconstruction of the CAD model basing on the approximation of B-Spline surface.

01/04/2016 – 30/06/2016: End of studies internship at the Montpellier University, France

Supervised by: Prof. Gérard SUBSOL

Laboratory: Laboratory of Computer Science, Robotics and Microelectronics of Montpellier (LIRMM)

Subject: Reconstruction of a coherent CAD model from a 3D point cloud.

Professional internships:

03/08/2015 – 03/09/2015: Engineer's internship in Smartech, Tunisia

Subject: Design of a tool to inventory the network and index Websphere and Maximo instances.

02/07/2014 – 28/08/2014: Engineer's internship in Sagemcom Software & Technologies, Tunisia

Subject: Integration of new technologies (HTML5, Css3 and JavaScript) for the realization of a STB portal (set-top-box: a decoder box that transforms external signals for display on the screen)

01/06/2014 – 30/06/2014: Engineer's internship in Telnet Company

Subject: Design and development of a user management module for a car-pooling portal (JEE Framework).

01/08/2013 – 31/08/2013: Technician internship in the Tunisia Telecom Company

Subject: Supervision of computer networks.

01/06/2013 – 31/07/2013: Technician internship in the Engineering Notion Publicity (ENP) society

Subject: Creation of a dynamic website to manage online commercial transactions for Lenovo products using WordPress.

SCIENTIFIC EVENTS

Member of the Organizing Committee of the 24 Hours of Innovation, ISSAT, 10-11 December 2021.

Member of the Organizing Committee of the Bio-Mechanics Online Meeting, 18 July, 2021 (Online).

Member of the Organizing Committee of the Additive Manufacturing technical day, CRT Sousse, Tunisia, 24 June 2021.

Participation in the international conference “25th International Conference Information Visualisation”, University of Technology Sydney (UTS), Australia, 5-9 July, 2021 (Online).

Participation in the International workshop "International workshop on Machine learning & Python", Monastir, December 20-22, 2019.

Participation in the “23rd International Conference Information Visualisation”, Paris, France, 2-5 July, 2019.

Participation in the international conference “14th International Conference on Computer Systems and Applications”, Hammamet, Tunisia, 30 October – 3 November, 2017

Participation in the international RoboCamp competition (as Technical Manager at club AeroRobot ISSAT Sousse), December 2013.

TRAINING

23/05/2019: Training in "Surface reconstruction in CAD using CATIA" at the Polytechnic University of Hauts-de-France.

07/02/2019 – 21/03/2019: French course "Projet Voltaire" at the Polytechnic University of Hauts-de-France.

24/11/2018 – 25/11/2018: Matlab training at the Faculty of Sciences of Sfax.

04/07/2018 – 03/08/2018: English B1 + training at the Bourguiba Institute for Modern Languages.

12/01/2018: Deep learning training at the Higher Institute of Computer Science and Communication Techniques of Hammam Sousse.

20/05/2017 – 21/05/2017: Training on Arduino Application for metrology at the Faculty of Sciences of Sfax.

01/07/2012 – 31/07/2012: Training on Dynamic Website creation (Html5+Css3+JQuery) at "Training-Pro" training center.

CERTIFICATIONS

29/12/2021: Cisco Certified Network Associate CCNAv7: Introduction to Networks

26/12/2021: Cisco Certified Network Associate CCNAv7: Switching, Routing, and Wireless Essentials

05/07/2021: Scrum Master Certification

02/07/2021: Six Sigma Yellow Belt

11/06/2021: Scrum Fundamentals Certification

Computer Skills

Programming tools: C, C++, Visual Basic, MatLab, HTML5, CSS3, PHP, JQuery, Java, JEE...

Common Application Architecture: API Solidworks, API Catia with C++/VBA, OpenCascade, SOFA...

CAD/CAM: CATIA, SolidWorks, MeshLab, CloudCompare...

LANGUAGES

Arabic: Native

French: Advanced

English: Advanced