FAYCAL SAFFIH
DR. ÖĞR. ÜYESI

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Biyografi

Dr. Fayçal Saffih (**د. فيصل صفيح**) (IEEE Member since 2000) received the B.Sc. (with Best Honors) degree in Physics from the **University of Sétif-1, Sétif, Algeria, in 1996**, the M.Sc. degree in Physics (https://bit.ly/MasterThesis_FaycalSaffih) from the **University of Malaya, Kuala Lumpur, Malaysia, in 1998**, and the Ph.D. degree in Electrical and Computer Engineering (https://bit.ly/FayalS_PhDThesis) from the **University of Waterloo, Waterloo, ON, Canada, in 2005.**

Dr. Faycal Saffih has broad experience in Physics, Electrical & Electronics Engineering with an emphasis on Artificial Intelligence (AI) Hardware Implementation in heuristic Artificial Nets (https://bit.ly/Downloading_MasterThesis_FaycalS), in Nano/Microelectronics; at the device, circuits, and systems levels in CMOS imaging designs (http://bit.ly/FayalS_PhDThesis) to the integrative technology of the IoT. Furthermore, he took his AI implementation philosophy into STEM teaching and education ("***Artificially Intelligent Method (AIM) for STEM-based Electrical Engineering Education and Pedagogy: Microelectronics***": https://bit.ly/AIM4STEM_ASEE2017_Talk_FaycalS [paper seminar] and https://bit.ly/AIM4STEM_ASEE2017P_FaycalS [published paper]. It is worth mentioning that Dr. Faycal Saffih has been a member of the **American Society for Engineering Education** (**ASEE**) since 2016. In addition, over the last 20 years, he taught Analog and digital microelectronics, computer vision, and CMOS imaging to name a few, at many Canadian and International Universities at both graduate and undergraduate levels. Dr. Faycal Saffih has developed a unique AI-based Teaching Philosophy (https://bit.ly/FaycalS_Teaching-Phil) and used **Learning Management Systems** (**LMS**) extensively to engage his students and research assistants (https://bit.ly/LMS-Teaching_FaycalS). You may watch in a relaxing mode and watch my students' evaluation of my newly AI-based teaching method that I developed at UAE University for Smart Learning/Teaching https://bit.ly/FaycalS_SMARTeach_StudentEvaluation_Dec2016 and you may download my published paper the 2017's International Conference of American Society for Engineering Education, which I am also a member of, from this link: https://bit.ly/AIM4STEM_ASEE2017P_FaycalS_and watch its presentation presented in the conference in Columbus, OH, USA, here: https://bit.ly/AIM4STEM_ASEE2017T_FaycalS.

Dr. Faycal Saffih is a bilingual Canadian/Algerian citizen with a multidisciplinary academic and industrial career that took him from Malaysia in far southeast Asia to the West coast of the USA.
His contributions to **Artificially Intelligent Design Engineering** (**AIDE**) span the last 25 years since his master's research on **digital implementation of Artificial Intelligence (AI) through Neural Networks, in Malaysia in**

1999. After this phase, he endeavored into **biomimicry** of Physical/**Biological Intelligence** (**BI**) during his doctoral research at the U**niversity of Waterloo, Canada,** where he focused on circuits and system-level design of **Smart CMOS Imaging.** This research involved microelectronics design from concept to circuit design passing by post-layout simulation and to tape-out based on 180nm CMOS Technology and finally optoelectronic characterization properties, all single-handedly.

After an industrial experience as a **Senior CMOS Imager Analog Designer** (https://bit.ly/FaycalS_VOXTEL) at Voxtel-Inc, OR, USA, for more than 2 years, he endeavored on Intelligent Imaging at the semiconductor device level yielding his **first patent on Nano-Photo-Rods** (https://bit.ly/Patent1-2011_FaycalS) in 2011 during his research fellowship at KAUST University, KSA. Since then, he has been running a very successful International research collaboration (https://bit.ly/FaycalS_QNC-NanoFAB-CollaborKickOff) with the University of Waterloo's Quantum Nano-Center (https://bit.ly/QNC-UW).

The second and final industrial route of Dr. Faycal Saffih took him back to Waterloo, ON, Canada, where he joined the **Space and Defense Imaging department of Teledyne-Dalsa**, a leading multinational imaging company, in 2018 as a **Senior Design Specialist** (https://bit.ly/Ref-Letter_HR-TDY_Dalsa).

Since 2018 (https://bit.ly/PhDStudents_UoT_FaycalS), Dr. Faycal Saffih's research has taken a new direction in **embedding intelligence into IoT systems** for **Intelligent biomedical applications** such as the **Intelligent Pancreas** (**IP**) he published in the distinguished **Journal of Physical and Engineering Sciences in Medicine** (https://bit.ly/FaycalS_IntelligentPancreas), a Q1-classified international journal! This paper used AI to extract/infer blood glucose levels from ECG biosignals before feeding it back wirelessly into a micropump to inject an adequate amount of insulin if needed.

After a 3-year transit in his country of birth Algeria, where he undertook the above-mentioned research from the University of Tlemcen while being a senior researcher at the Center for the Development of Advanced Technologies, CDTA: www.cdta.dz, Dr. Faycal Saffih decided to endeavor to his final ﷺ destination to his beloved Istanbul, Turkiye, where joined the **Electrical and Electronic Department of Istanbul Gelsim University.**

You may check all of Dr. Faycal Saffih's worldwide talks and seminars at this interactive map: https://bit.ly/Seminars_Map_FaycalS, or if interested in MicroElectronics, you may watch his course's classes at: https://bit.ly/Microelectronics_Spring2017_FaycalS and its Lab at: https://bit.ly/Electronics_Lab_Spring2017_FaycalS all of which inspired by his own teaching/education philosophy: https://bit.ly/Teaching_Philosophy_FaycalS.

Ögrenim Bilgisi

Doktora 1999 - 2005	University of Waterloo, Engineering, Electrical and Computer Engineering, Kanada
Yüksek Lisans 1997 - 1999	Universiti Malaya, Science, Physics / Complex Systems, Malezya
Lisans 1992 - 1996	Université de Sétif, Science, Physics / Solid-State Physics, Cezayir

Yabancı Diller

Fransızca, C1 İleri
İngilizce, C1 İleri
Arapça, C2 Ustalık

Sertifika, Kurs ve Eğitimler

Proje Yönetimi, Certified Lean Six Sigma Black Belt, Simplilearn, 2017
Proje Yönetimi, Renewable Energy (RE) Project developer (Photovoltaics), Renewables Academy (RENAC) , 2016
Sürdürülebilir Enerji Kaynakları, Stanford University Certificate on Energy Innovation Emerging Technologies, Stanford University, 2013

Akademik Unvanlar / Görevler

Dr. Öğr. Üyesi 2015 - 2017	United Arab Emirates University, Engineering, Electrical Engineering
Dr. Öğr. Üyesi 2014 - 2015	American University of the Middle-East, Science, Physics
Öğretim Görevlisi Dr. 2012 - 2012	University of Guelph, School of Engineering
Araştırmacı 2009 - 2012	King Abdullah University of Science and Technology, Physical Science and Engineering Division
Öğretim Görevlisi Dr. 2006 - 2006	Wilfrid Laurier University, Science, Physics and Computer Science

Desteklenen Projeler

1. Saffih F., Diğer Uluslararası Fon Programları, Course Transformation Project: Smart Teaching, 2016 - 2017

Ödüller

1. Saffih F., Research StartUp Award, Uae University's Office Of Research; Sponsored Projects, Ocak 2016
2. Saffih F., Seedfund Award, Kaust Economic Development, Ocak 2011
3. Saffih F., Collaborative Fund, Kaust's Office Of Competitive Research Funds (Ocrf), Ocak 2010

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

1. **Blood glucose estimation based on ECG signal**
   Fellah Arbi K., Soulimane S., Saffih F., Bechar M. A., Azzoug O.

Physical and Engineering Sciences in Medicine, cilt.46, sa.1, ss.255-264, 2023 (SCI-Expanded)

2. **Chromium oxide as a hard mask material better than metallic chromium**
   Aydinoglu F., Saffih F., Dey R. K., Cui B.
   Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics, cilt.35, sa.6, 2017 (SCI-Expanded)
3. **Silicon nanostructures with very large negatively tapered profile by inductively coupled plasma-RIE**
   Ayari-Kanoun A., Aydinoglu F., Cui B., Saffih F.
   Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics, cilt.34, sa.6, 2016 (SCI-Expanded)
4. **Fabrication of silicon nanostructures with large taper angle by reactive ion etching**
   Saffih F., Con C., Alshammari A., Yavuz M., Cui B.
   Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, cilt.32, sa.6, 2014 (SCI-Expanded)
5. **A multisampling time-domain CMOS imager with synchronous readout circuit**
   Campos F. S., Marinov O., Faramarzpour N., Saffih F., Deen M. J., Swart J. W.
   Analog Integrated Circuits and Signal Processing, cilt.57, sa.1-2, ss.151-159, 2008 (SCI-Expanded)
6. **Foveated dynamic range of the pyramidal CMOS image sensors**
   Saffih F., Hornsey R. I.
   IEEE Transactions on Electron Devices, cilt.54, sa.12, ss.3422-3425, 2007 (SCI-Expanded)
7. **Reduced human perception of FPN noise of the pyramidal readout CMOS image sensor**
   Saffih F., Hornsey R.
   IEEE Transactions on Circuits and Systems for Video Technology, cilt.17, sa.7, ss.924-930, 2007 (SCI-Expanded)

Diğer Dergilerde Yayınlanan Makaleler

1. **Non-invasive method for blood glucose monitoring using ECG signal**
   Fellah Arbi K., Soulimane S., Saffih F.
   Polish Journal of Medical Physics and Engineering, cilt.29, sa.1, ss.1-9, 2023 (ESCI)

Kitap & Kitap Bölümleri

1. **Smart CMOS Imaging Architectures: System and Device-level implementations of Smart CMOS imaging**
   SAFFIH F.
   Lap-Lambert Academic Publishing, 2014

Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

1. **Constrained Linear Model Predictive Control for an Artificial Pancreas**
   Arbi K. F., Morakchi M. R., El Aouaber Z. A., Saffih F., Djaddoudi M. S., Bouregaa M., Soulimane S.
   2024 8th International Conference on Image and Signal Processing and their Applications (ISPA), Biskrah, Cezayir, 21 - 22 Nisan 2024, ss.1-6
2. **Intelligent IoT (I2oT) Biomedical Wearable System based on Smartphone Application**
   Arbi K. F., Kromba I., Saffih F., Ben-Ramdane A., Slami A., Hadjersi A., Soulimane S., Brixi Nigassa M. E.
   5th IEEE Middle East and Africa Conference on Biomedical Engineering, MECBME 2020, Amman, Ürdün, 27 - 29 Ekim 2020, cilt.2020-October
3. **Mechanism optimization of biomimitic microrobot by finite element modeling**
   Ibrahim K., Sofiane S., Faycal S.
   6th International Conference on Electrical Engineering, ICEE 2020, Virtual, Istanbul, Türkiye, 25 - 27 Eylül 2020

4. **IoT technologies combining glucose control with physiological signal: comparative study**
   Arbi K. F., Soulimane O., Saffih F.
   6th International Conference on Electrical Engineering, ICEE 2020, Virtual, Istanbul, Türkiye, 25 - 27 Eylül 2020
5. **Vehicle Longitudinal Acceleration Determination from Mobile Phone Sensor: An IoT System Solution for Intelligent Transportation**
   Saffih F., Fieguth P.
   2018 IEEE International Symposium on Signal Processing and Information Technology, ISSPIT 2018, Kentucky, Amerika Birleşik Devletleri, 6 - 08 Aralık 2018, ss.706-710
6. **Artificially Intelligent Method (AIM) for STEM-based electrical Engineering education and pedagogy case study: Microelectronics**
   Saffih F.
   124th ASEE Annual Conference and Exposition, Ohio, Amerika Birleşik Devletleri, 25 - 28 Haziran 2017, cilt.2017-June
7. **Artificially-Intelligent Imaging (AI2) sensors: How intelligent CMOS imaging devices can benefit Photovoltaics?**
   Saffih F.
   7th International Conference on Modeling, Simulation, and Applied Optimization, ICMSAO 2017, Sharjah, Birleşik Arap Emirlikleri, 4 - 06 Nisan 2017
8. **Pre-coding & testing technique for interfacing neural networks associative memory**
   Saffih F., Abdulllah W., Ibrahim Z.
   13th International Symposium on Neural Networks, ISNN 2016, St. Petersburg, Rusya, 6 - 08 Temmuz 2016, cilt.9719, ss.698-705
9. **Functional integration for smart CMOS imagers: Dynamic range enhancement & gamma correction**
   Saffih F., Hornsey R.
   2013 26th IEEE Canadian Conference on Electrical and Computer Engineering, CCECE 2013, Regina, Kanada, 5 - 08 Mayıs 2013
10. **Fabrication of CMOS-compatible nanopillars for smart bio-mimetic CMOS image sensors**
    Saffih F., Elshurafa A. M., Mohammad M. A., Nelson-Fitzpatrick N., Evoy S.
    2012 IEEE 10th International New Circuits and Systems Conference, NEWCAS 2012, Montreal, Kanada, 17 - 20 Haziran 2012, ss.333-336
11. **Efficient on-line hardware/software task scheduling for dynamic run-time reconfigurable systems**
    Al-Wattar A., Areibi S., Saffih F.
    2012 IEEE 26th International Parallel and Distributed Processing Symposium Workshops, IPDPSW 2012, Shanghai, Çin, 21 - 25 Mayıs 2012, ss.401-406
12. **Bio-inspired nano-photodiode for Low Light, High Resolution and crosstalk-free CMOS image sensing**
    Saffih F., Fitzpatrick N. N., Mohammad M. A., Evoy S., Cui B.
    2011 IEEE International Symposium of Circuits and Systems, ISCAS 2011, Rio de Janeiro, Brezilya, 15 - 18 Mayıs 2011, ss.797-800
13. **Automatic star pattern recognition in tracking mode**
    Masood-Ur-Rehman M., Jiancheng F., Saffih F., Wei Q.
    6th International Bhurban Conference on Applied Sciences and Technology, IBCAST-2009, Islamabad, Pakistan, 19 - 22 Ocak 2009, cilt.2, ss.249-252
14. **Single star identification and attitude determination in tracking mode**
    Masood-Ur-Rehman M., Jiancheng F., Saffih F., Wei Q.
    2008 International Conference on Control, Automation and Systems, ICCAS 2008, Seoul, Güney Kore, 14 - 17 Ekim 2008, ss.1121-1124
15. **Fast tracking mode predictive centroiding scheme**
    Rehman M., Fang J., Saffih F., Quan W.
    7th International Symposium on Instrumentation and Control Technology: Measurement Theory and Systems and Aeronautical Equipment, Beijing, Çin, 10 - 13 Ekim 2008, cilt.7128

16. **A multisampling time-domain CMOS imager with synchronous readout circuit**
De Souza Campos F., Marinov O., Faramarzpour N., Saffih F., Deen M. J., Swart J. W.
SBCCI 2007: 20th Symposium on Integrated Circuits and System Design, Copacabana, Rio de Janeiro, Brezilya, 3 - 06 Eylül 2007, ss.53-58
17. **Improve learning efficiency with integrated math and circuit simulation tools in electrical and computer engineering courses**
Campbell C., Saffih F., Nigim K.
113th Annual ASEE Conference and Exposition, 2006, Chicago, IL, Amerika Birleşik Devletleri, 18 - 21 Haziran 2006
18. **Human perception of fixed pattern noise in pyramidal CMOS image sensor**
Saffih F., Hornsey R. I., Wilson H. R.
Photonics North 2004: International Conference on Applications of Photonic Technology, ICAPT, Ottawa, Kanada, 26 - 29 Eylül 2004, cilt.5578, ss.400-409
19. **Biomimetic sampling architectures for CMOS image sensors**
Saffih F., Hornsey R.
Sensors and Camera Systems for Scientific, Industrial, and Digital Photography Applications V, San Jose, CA, Amerika Birleşik Devletleri, 19 - 21 Ocak 2004, cilt.5301, ss.193-204
20. **Multi-resolution CMOS image sensor**
Saffih F., Hornsey R.
SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging, Opto-Canada 2002, Ottawa, Kanada, 9 - 10 Mayıs 2002, cilt.10313, ss.425-428

Patent

Saffih F., Bio-inspired Nanostructures for Implementing Vertical PN-junction, Patent, BÖLÜM H Elektrik, Buluşun Başvuru Numarası: PCT/IB2011/000432 , Standart Tescil, 2011

Metrikler

Yayın: 30
Atıf (Scopus): 165
H-İndeks (Scopus): 7

Davetli Konuşmalar

"Bio-Intelligence for Artificially Intelligent Imaging Design (AI2) and Smart STEM Education" [https://bit.ly/UoTlemcen-Talk2018FaycalS], Seminer, University of Tlemcen, Cezayir, Ocak 2018
"From System Design to Intelligence Design & from Classical to STEM Education" [https://bit.ly/FaycalSSyDeEng-UW-VIPLabNov2017], Seminer, VIP Lab, Systems Design Engineering Department, University of Waterloo, Kanada, Kasım 2017
"Artificially Intelligent Imaging (AI2): Implementations of Smart CMOS Imaging" [https://bit.ly/FaycalSPolytechTalk2016], Seminer, Polytechnique Montréal, Kanada, Temmuz 2016

Araştırma Alanları

Elektronik ve Bilgisayar Eğitimi, Yapay Zeka, Bilgisayarda Öğrenme ve Örüntü Tanıma, Biyoenstrümantasyon ve MEMS, Biyosinyal İşleme, Teletıp, Dönüştürücüler ve Algılama Aygıtları, Elektronik Devreler, Nanoteknoloji, Optik ve Fotonik, Optoelektronik Malzeme ve Aygıtlar, Elektronik ve manyetik cihazlar,mikroelektronik, Algılayıcılar/ Elektrooptik

Teknolojiler, Elektro-optik teknolojiler

Akademi Dışı Deneyim

Şirket, Teledyne-Dalsa , Defense and Space Imaging Systems
Şirket, Intelligent Mechatronic Systems Inc. , Research & Development Department
Şirket, Voxtel Inc., CMOS Image Sensor design group