

## PERSONAL INFORMATION

## Amila Akagic




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 Google Scholar:

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Gender Female | Nationality Bosnia and Herzegovina

## EDUCATION AND TRAINING

2010–2013

**PhD, Keio University, Graduate School of Science and Technology, Tokyo, Japan**

Thesis Title: 'Adaptable Architectures for Acceleration of Protocol Processing using FPGAs'

Supervisor: Hideharu Amano, PhD

2009

**Master of Science, University of Sarajevo, Faculty of Electrical Engineering, Department of Computer Science and Informatics**

Thesis Title: 'Using Programmable Logic for Execution of Cyclic Codes in Network Communications'; 'Korištenje programabilne logike za izračunavanje cikličnih kodova u mrežnim komunikacijama' (In Bosnian)

Supervisor: Novica Nosovic, PhD

2006

**Dipl. ing. el., University of Sarajevo, Faculty of Electrical Engineering, Department of Computer Science and Informatics**

Thesis Title: 'Asterisk, an example of using open source solutions in modern telephony'; 'Asterisk, primjer korištenja open source rjesenja u savremenoj telefoniji' (In Bosnian)

Supervisor: Novica Nosovic, PhD

## WORK EXPERIENCE

January 2020 – Present

**Associate Professor**

University of Sarajevo, Faculty of Electrical Engineering, Sarajevo (Bosnia and Herzegovina)

I taught several undergraduate and graduate courses in Electrical Engineering, Computer Science and Telecommunications, including Artificial Intelligence, Advanced topics of Artificial Intelligence, Digital Signal Processing, Advance Topics of Signal Processing, Logic Design, Computer Architecture, Hardware-Software Co-Design, Parallel Computing Systems, System on Chip Design, etc.

April 2014 – December 2019

**Assistant Professor**

University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina

September 2010 – March 2013

**Research Assistant**

Keio University, Tokyo, Japan

Research Assistant at Global Centre of Excellence for the "High-Level global cooperation for leading-edge platform on access spaces"

September 2007 – June 2008 **Jr. Research Assistant**

University of California, Riverside, USA

Research Assistant at Laboratory for Computer Architecture and Embedded Systems

December 2006 – March 2014 **Senior Teaching Assistant & Teaching Assistant**

University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina

Teaching assistant for undergraduate and graduate courses in electrical engineering and computer science, including Logic Design, Computer Architecture, Parallel Computing Systems, System on Chip Design, etc. Examination invigilator for undergraduate and graduate courses.

LANGUAGE SKILLS

Mother tongue Bosnian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
German	A2	A2	A2	A2	A2
Japanese	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](#)

Honours and Awards

- Fulbright Scholarship, Department of Computer Science and Engineering, University of California, Riverside, 2007-2008.
- MEXT Scholarship (Ministry of Education, Culture, Sports, Science, and Technology, Japan), Graduate School of Science and Technology, Keio University, Tokyo, Japan, 2010-2013.
- Keio Leading Edge Laboratory Research Grant Award, Graduate School of Science and Technology, Keio University, Tokyo, Japan, 2011-2013.

Other Academic activities

- Reviewer for several journals, such as “IEEE Transactions on Circuits and Systems”, “IEEE Access”, “Mathematics”, “Journal of Imaging”, “Remote Sensing”, “Applied Sciences”, “Automation in construction”, “International Journal of Wildland Fire”, and others.
- Member of the Program Committee for the “2nd Sustainable Computing Systems Workshop (SUSCW 2019)” as part of the CANDAR19 Conference held in Nagasaki, Japan.

Organisational / managerial skills

- In 1999 I founded an association “Linux User Group” in Bosnia and Herzegovina and served as its first president. The group was very active and we organized many meetings and educational seminars and trainings.
- I’m an active member of IEEE and ACM. I serve as a IEEE Computer Science and Computational Intelligence Society Chapter Chair since 2014.
- I’m Women in Data Science (WiDS) Ambassador (<https://www.widsconference.org/>). I am organizing “Women in Data Science Sarajevo @ University of Sarajevo” on April 17th 2020. More information on <http://wids.etf.unsa.ba>.

INTERNATIONAL COOPERATION

2014 – 2018 **Network for Sustainable Ultrascale Computing (NESUS)**

Management Committee

2014 – 2018 **Cryptanalysis of ubiquitous computing systems (CRYPTACUS)**

Management Committee

2014 – 2018 **Memristors - Devices, Models, Circuits, Systems and Applications (MemoCiS)**

Management Committee

## PROJECTS

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- 2021 – 2022 **Real-time educational and training simulator for Smart Grid**  
Partner: Ministry for Education, Science and Youth of the Sarajevo Canton
- 2021 – 2022 **Multi-domain mobile 3D mapping and inspection toolbox for cultural heritage preservation (3DVMS)**  
Partner: Ministry for Education, Science and Youth of the Sarajevo Canton
- 2021 – 2022 **Application of artificial intelligence methods for detection of horizontal traffic signs for improving autonomous driving**  
Partner: UNDP, Economic Governance for Growth – EGG Project
- 2018 – 2019 **Advanced Reconfigurable system for detection of infrastructure damages based on a system-on-chip and drone**  
Partner: Ministry for Education, Science and Youth of the Sarajevo Canton
- 2017 – 2018 **Advanced mobile system for video and image analysis and segmentation**  
Partner: Ministry for Education, Science and Youth of the Sarajevo Canton  
The result of the project was development of a new mobile rover for automatic image and video segmentation. The purpose of the system was to detect high severity distresses on asphalt surface pavements.
- 2010 – 2013 **High-Level Global Cooperation for Leading-Edge Platform on Access Spaces**  
Research Assistant  
Keio University, Graduate School of Science and Technology, Tokyo (Japan)

**2006 – 2009 FP7: SEEGRID eInfrastructure**

System Engineer and Administrator  
University of Sarajevo  
Faculty of Electrical Engineering  
Sarajevo (Bosnia and Herzegovina)

The goal of the project was the creation of a distributed environment for sharing resources known as the Grid paradigm. This integrated networking and middleware environment is called eInfrastructure. SEE-GRID intended to provide specific support actions to pave the way towards the participation of the SE European countries to the Pan-European and worldwide Grid initiatives.

**METRICS:**

1. Google Scholar Citations at: <https://scholar.google.com/citations?hl=en&user=zHE5tRMAAAAJ>
2. Peer review and editorial contributions for academic journals at: <https://www.webofscience.com/wos/author/rid/X-6356-2019>

**PUBLICATIONS**

- [1] Amila Akagic and Hideharu Amano. "An FPGA implementation of CRC slicing-by-N algorithms". In: *RECONF: IEICE technical report* 110.319 (2010), pp. 19–24.
- [2] Amila Akagic and Hideharu Amano. "Performance analysis of fully-adaptable CRC accelerators on an FPGA". In: *22nd International Conference on Field Programmable Logic and Applications (FPL)*. IEEE. 2012, pp. 575–578.
- [3] Amila Akagic and Hideharu Amano. "A study of adaptable co-processors for cyclic redundancy check on an FPGA". In: *2012 International Conference on Field-Programmable Technology*. IEEE. 2012, pp. 119–124.
- [4] Amila Akagic and Hideharu Amano. "Design and Implementation of IP-based iSCSI Offload Engine on an FPGA". In: *IPSI Transactions on System LSI Design Methodology* 6 (2013), pp. 112–121.
- [5] Amila Akagic and Hideharu Amano. "High-speed fully-adaptable CRC accelerators". In: *IEICE TRANSACTIONS on Information and Systems* 96.6 (2013), pp. 1299–1308.
- [6] Amila Akagic and Hideharu Amano. "Multiple Table Lookup Implementation of Error Correction on an FPGA". In: ().
- [7] Amila Akagic. "Adaptable architectures for acceleration of protocol processing using FPGAs". PhD thesis. 2013.
- [8] Amila Akagić and Hideharu Amano. "Performance evaluation of multiple lookup tables algorithms for generating CRC on an FPGA". In: *2011 1st International Symposium on Access Spaces (ISAS)*. IEEE. 2011, pp. 164–169.
- [9] Amila Akagić and Hideharu Amano. "High Speed CRC with 64-bit generator polynomial on an FPGA". In: *ACM SIGARCH Computer Architecture News* 39.4 (2011), pp. 72–77.
- [10] Marijana Ćosović, Amila Akagić, and Zdenka Babić. "UPOREDNA ENERGETSKA ANALIZA FPGA REALIZACIJA MODULARNIH MNOŽAČA PERFORMANCE ANALYSIS OF MODULAR MULTIPLIERS IMPLEMENTATIONS ON FPGA". In: ().
- [11] Amila Akagic, Emir Buza, and Samir Omanovic. "Pothole detection: An efficient vision based method using rgb color space image segmentation". In: *2017 40th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*. IEEE. 2017, pp. 1104–1109.
- [12] Haris Hasic, Emir Buza, and Amila Akagic. "A hybrid method for prediction of protein secondary structure based on multiple artificial neural networks". In: *2017 40th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*. IEEE. 2017, pp. 1195–1200.

- [13] Emir Buza, Amila Akagic, and Samir Omanovic. "Skin detection based on image color segmentation with histogram and k-means clustering". In: *2017 10th International Conference on Electrical and Electronics Engineering (ELECO)*. IEEE. 2017, pp. 1181–1186.
- [14] Emir Buza, Amila Akagic, Samir Omanovic, and Haris Hasic. "Unsupervised method for detection of high severity distresses on asphalt pavements". In: *2017 IEEE 14th International Scientific Conference on Informatics*. IEEE. 2017, pp. 45–50.
- [15] Amila Akagic, Emir Buza, Samir Omanovic, and Almir Karabegovic. "Pavement crack detection using otsu thresholding for image segmentation". In: *2018 41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*. IEEE. 2018, pp. 1092–1097.
- [16] Amila Akagic, Emir Buza, Razija Turcinhodzic, Hana Haseljic, Noda Hiroyuki, and Hideharu Amano. "Superpixel accelerator for computer vision applications on arria 10 soc". In: *2018 IEEE 21st International Symposium on Design and Diagnostics of Electronic Circuits & Systems (DDECS)*. IEEE. 2018, pp. 55–60.
- [17] Hana Haseljic, Emir Cogo, Irfan Prazina, Razija Turcinhodzic, Emir Buza, and Amila Akagic. "OpenCL Superpixel Implementation on a General Purpose Multi-core CPU". In: *2018 IEEE International Conference on Imaging Systems and Techniques (IST)*. IEEE. 2018, pp. 1–6.
- [18] Amila Akagic and Hideharu AMANO. "An FPGA implementation of CRC slicing-by-N algorithms". In: ().
- [19] E. Buza, A. Akagic, and I. Besic. "Image-Based Crack Detection Using Sub-image Technique". In: *2019 11th International Conference on Electrical and Electronics Engineering (ELECO)*. 2019, pp. 614–618.
- [20] D. Dzigal, A. Akagic, E. Buza, A. Brdjanin, and N. Dardagan. "Forest Fire Detection based on Color Spaces Combination". In: *2019 11th International Conference on Electrical and Electronics Engineering (ELECO)*. 2019, pp. 595–599.
- [21] Edvin Teskeredzic and Amila Akagic. "Low cost UGV platform for autonomous 2D navigation and map-building based on a single sensory input". In: *2020 7th International Conference on Control, Decision and Information Technologies (CoDIT)*. Vol. 1. IEEE. 2020, pp. 988–993.
- [22] Adnan Brdjanin, Nadja Dardagan, Dzemil Dzigal, and Amila Akagic. "Single Object Trackers in OpenCV: A Benchmark". In: *2020 International Conference on INnovations in Intelligent SysTems and Applications (INISTA)*. IEEE. 2020, pp. 1–6.
- [23] Emir Barucija, Amila Akagic, Samir Ribic, and Zeljko Juric. "Two approaches in solving Rubik's cube with Hardware-Software Co-design". In: *2020 43rd International Convention on Information, Communication and Electronic Technology (MIPRO)*. IEEE, pp. 128–133.
- [24] Nađa Dardagan, Adnan Brđanin, Džemil Džigal, and Amila Akagic. "Multiple Object Trackers in OpenCV: A Benchmark". In: *2021 IEEE 30th International Symposium on Industrial Electronics (ISIE)*. IEEE. 2021, pp. 1–6.
- [25] Amila Akagic and Emir Buza. "LW-FIRE: A Lightweight Wildfire Image Classification with a Deep Convolutional Neural Network". In: *Applied Sciences* 12.5 (2022), p. 2646.
- [26] Emir Buza and Amila Akagic. "Unsupervised Method for Wildfire Flame Segmentation and Detection". In: *IEEE Access* (2022).
- [27] Emir Turajlic, Emir Buza, and Amila Akagic. "Multilevel image thresholding based on Rao algorithms and Kapur's Entropy". In: *2022 XXVIII International Conference on Information, Communication and Automation Technologies (ICAT)*. IEEE. 2022, pp. 1–7.
- [28] Amila Akagic, Senka Krivić, Harun Dizdar, and Jasmin Velagić. "Computer Vision with 3D Point Cloud Data: Methods, Datasets and Challenges". In: *2022 XXVIII International Conference on Information, Communication and Automation Technologies (ICAT)*. IEEE. 2022, pp. 1–8.

- [29] Amila Akagic and Izudin Džafić. "Deep Reinforcement Learning in Smart Grid: Progress and Prospects". In: *2022 XXVIII International Conference on Information, Communication and Automation Technologies (ICAT)*. IEEE. 2022, pp. 1–6.
- [30] Dinko Osmankovic, Amila Akagic, Senka Krivic, Tarik Uzunovic, and Jasmin Velagic. "Towards Safe and Explainable Humanitarian Demining with Deep Learning". In: *18th International Symposium Mine Action 2022*. HCR-CTRO. 2022, pp. 1–7.