

# Mahdi Kafeae

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## Contact Information

School of Electrical & Robotic Engineering, Shahrood University of Technology, Shahrood, Iran.

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## Research Interests

Medical Imaging

Radiation Detection and Measurement

Signal and Image Processing

Instrumentation

Soft Computing

Science and Technology Studies (STS)

## Education

Ph.D., Majored in Biomedical Radiation Engineering, Amirkabir University of Technology, Tehran, Iran. (2016).

Dissertation Title: Gamma Spectroscopy in High Count Rates with Emphasis on Pulse Pile-up Correction Using Neural Network and Sparse Reconstruction.

M. Sc., Majored in Biomedical Radiation Engineering, Amirkabir University of Technology, Tehran, Iran (2009).

Thesis Topic: Study of accuracy increase in data acquisition systems for nuclear radiation detectors with pulse pile-up correction using Genetic Algorithm and Neural Network.

B. Sc., Majored in Electrical Engineering, Amirkabir University of Technology, Tehran, Iran (2006).

Thesis Topic: Design and Implementation of an Automated Incubator.

## Work Experience

University of Shahrood, Shahrood, Iran, Assistant Professor (2016 – present)

Shahab Danesh University of higher education, Vice-Graduate Department of Biomedical Engineering (2015-2016)

Amirkabir University of Technology, Research Institute of Science, Philosophy and Engineering Ethics, Research Assistant (2012-2013)

Research Center of the electronics industry Country, Iran Think Tanks Network, Research Assistant (2008-2009)

## Journal Publications

Kafae, M., & Saramad, S. (2009). Pile-up correction by genetic algorithm and artificial neural network. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 607(3), 652-658.

Sani, V. E., Moussavi-Zarandi, A., & Kafae, M. (2011). Wavelength prediction of laser incident on amorphous silicon detector by neural network. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 654(1), 464-470.

Rabiei, A., Shamsaei, M., Kafae, M., Shafaei, M., & Mahdavi, N. (2012). Void fraction and flow regime determination by means of MCNP code and neural network. *Nukleonika*, 57(3), 345-349.

Fahiman, F., Kafae, M., Moussavi-Zarandi, A., & Fahiman, M. (2014). Efficient Digital Implementation of Signal Processing Algorithms in State-Of-The-Art Field-Programmable Gate Arrays for Gamma-Ray Spectroscopy. *Nuclear Technology*, 187(1), 69-81.

Kafae, M., & Moussavi-Zarandi, A. (2016). Baseline restoration and pile-up correction based on bipolar cusp-like shaping for high-resolution radiation spectroscopy. *Journal of the Korean Physical Society*, 68(8), 960-964.

Kafae, M., Moussavi Zarandi, A., & Taheri, A. (2016). Neural-based pile-up correction and ballistic deficit correction of X-ray semiconductor detectors using the Monte Carlo simulation and the Ramo theorem. *Radiation Effects and Defects in Solids*, 171(3-4), 271-278.

## Book Publications

Smith, N. B., & Webb, A. (2011). *Introduction to medical imaging: physics, engineering and clinical applications*. (M. Kafae, M. Goodarzi, E. Misaghi, & M. Yazdani, Trans.). Sharif University of Technology.

Kafae, M., Islami rad, s.z., Shahshahani, L., & Hasani, M. (2017). *PET Nuclear Imaging; Physics, Engineering, and Iranian made prototype Description*. ACECR (Amirkabir University of Technology Branch).

Suetens, P. (2009). *Fundamentals of medical imaging*. (M. Kafae, L. Shahshahani, N. Rafiei, Trans.). Sharif University of Technology (referee acc).

Vlahakis, G., et. al., (2006). *Imperialism and Science: Social Impact and Interaction*. (M. Kafae, et. al., Trans.). Soroush Publication.

## Memberships

Member of Iran's National Elites Foundation, Iran.

Founding board member of the Research Center of the Electronics Industry Country, Iran Think Tanks Network, Iran.

Member of Combining Committee of Codification of the National Microelectronic Strategic Plan, Vice-President for Science and Technology, Iran.

**Teaching Experiences**

## Lecturer (2012 to current)

Ms.c	Medical Imaging Nuclear Imaging	Shahab Danesh University of higher education
Bs.c	Radiology and Radiotherapy systems Biomedical Engineering Technical language Statics and Probability Medical Physics Fundamentals of Electrical Engineering	Amirkabir University of Technology Shahab Danesh University of higher education Shahrood University of Technology
Instructor (2012 to 2016)		
Bs.c	Physics Lab II Nuclear Physics Lab	Amirkabir University of Technology
Teaching Assistant (2012 to 2013)		
Ms.c	Nuclear Electronics Dosimetry and Radiation Detection	Amirkabir University of Technology

**Honors**

Ranked 1<sup>st</sup> among graduate students in Ph.D program.

Talented student of Amirkabir University of Technology in M.Sc.

**Patents**

Pulse Pile up Detection and Correction System for Radiation Detectors, Iran Patent No: 60642.

A Vibrometer for Marine Laboratory Steel platforms, Iran Patent No: 62680.

**Programming and Software**

Visual C++	MCNP
Visual Basic	Orcad
Assembly language	Pspice
Matlab	Altium Designer
Ladder	Microsoft Project

**Hardware**

PLC	Radiation Sensors
FPGA	Modular Crate Electronics
Microcontroller	High Voltage Power Supplies

**Served as referee for**

National Research Institute for Science Policy (NRISP)

Nuclear Instruments and Methods in Physics Research A