

Ali T. Alouani

Subjects: Engineering, Electrical & Electronic

Contributor: Ali T. Alouani

Keywords: Intelligent Systems Design ; Sensor Data Fusion ; Medical Diagnosis Support Systems ; Artificial Intelligence ; Smart Grid ; EV Battery Safety

Basic Information



Name: Ali T. Alouani
(Aug 1955–)

Birth	Tunisia
Location:	
Title:	Professor of Electrical & Computer Engineering
Affiliation:	Tennessee Technological University
Honors:	Kinslow Engineering Research Award Brown-Henderson Award for Excellence in Teaching, Research, and Service IEEE Branch Award Caplenar Research Award

1. Education

- The University of Tennessee Knoxville, USA Ph.D. Degree in Electrical & Computer Engineering. (Dec, 1986) Thesis title: Implementation of Nonlinear Centralized Estimators in a Distributed Fashion. Research Areas: Autonomous Systems, Sensor Data Fusion, Medical Diagnosis Support Systems, EV Battery Safety, Smart Grid Monitoring
- Ecole Nationale d'Ingénieurs de Tunis, Tunisia, Ingénieur Principal in Electrical Engineering. (June 1981)

2. Academic Positions

- Tennessee Technological University, Cookeville, Tennessee, USA Professor. Electrical and Computer Engineering Department, (1995~Present)
- Tennessee Technological University, Cookeville, Tennessee, USA Associate Professor. Electrical and Computer Engineering Department, (1991~1995)
- Tennessee Technological University, Cookeville, Tennessee, USA Assistant Professor. Electrical and Computer Engineering Department, (1987~1991)
- The University of Tennessee Knoxville, USA Graduate Instructor, (March 1983~Dec. 1986).

3. Major research Projects

Principal Investigator of over \$3million dollars of external funded research from various sources including Tennessee Valley Authority, The US Naval Surface Warfare Center Dahlgren, Oak Ridge National Lab, The National Science Foundation, and various industries.

3.1 Intelligent Autonomous Robot for Substation Inspection

Design and develop an autonomous robot to perform substation inspection with no added navigation hardware to the substation.

3.2 Helping Handicapped People Drive on their own

Designed ADD ON control system to allow people without legs and arm drive using voice control command

3.3 Industry Sponsored Capstone Projects

Successfully completed over 100 capstone projects to solve problems for a variety of industries.

3.4 Automated Prescription Verification System

Designed and developed a robot to perform automatic prescription inspection for mail order pharmacies.

3.5 Boiler Tube Leak Detection using Artificial Neural Networks

User tube leak sensitive variable and artificial neural networks to detect the presence of a boiler tube leak I real time.

3.6 Target Tracking

Developed different target models and used sensor data fusion to improve track quality.

3.7 Minimally Invasive Surgery Flexible Manipulator with Semi-Automatic Inner Body Navigation

Designed a flexible manipulator and and an inner body navigation system for minimally invasive surgery

4. Major research Achievements

4.1 Patents

1. Patent US 10770918 B2, August 2020
2. Patent US 8860579B1, October 2014
3. Patent US 2013/0030286 A1, January 2013
4. US Patent 7884754, February 2011
5. US Patent 7028723 B1, April 2006
6. US Patent 6567795, May 2003
7. US Patent 6192352 B1, February 2001
8. US Patent 5214433, May 1993

4.2 Journal Papers (Most cited & most recent)

- Alouani, A.T., "Elfouly, T. Traumatic Brain Injury (TBI) Detection: Past, Present, and Future,". *Biomedicines* 2022, 10, 2472. October 2022.
- Mohammad Mamun and Ali Alouani," Cuffless Blood Pressure Measurement Using Linear and Nonlinear Optimized Feature Selection," Journal of *Diagnostics*12(2):408, February 2022.
- Brandon England and Ali Alouani, "Real time voltage stability prediction of smart grid areas using smart meters data and improved Thevenin estimates," International Journal of Electrical Power & Energy Systems, vol. 22, Nov. 2020.
- Mohammad Mamun and Ali Alouani, "Diagnosis of STEMI and Non-STEMI Heart Attack using Nature-inspired Swarm Intelligence and Deep Learning Techniques," Journal of Biomedical Engineering and Biosciences, vol. 7, 2020.
- Faisal Alkhaldi and Ali Alouani, "Systemic Design Approach to a Real-Time Healthcare Monitoring System: Reducing Unplanned Hospital Readmissions," *Sensors* 2018/18/2531, pp.1~28.
- Ali T. Alouani and William D. Blair," Use of a kinematic constraint in tracking constant speed, maneuvering targets," *IEEE Transactions on Automatic Control*, Vol. 38, No.7, 1993

5. Awards

- 4 times winner of Wings up Research Achievement Award
- Received Tennessee Technological University Caplenar Research Award
- Received the Brown-Henderson Award for Excellence in Teaching, Research, and Service
- IEEE Student Branch Award , Tennessee Technological University
- Chancellor Citation for Academic Achievement and Professional Promise, University of Tennessee (UT) , Knoxville, TN
- Dupont Scholarship for Outstanding Teaching, UT Knoxville

Further Reading

Traumatic Brain Injury Detection

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