

**Karthikeyan Manikandan**  
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## Education

**Ph.D. in Learning Sciences and Educational Psychology** ([anticipated] May 2028)  
University of Iowa, Iowa City, IA

**M.S. in Biomedical Engineering** (May 2023)  
Arizona State University, Tempe, AZ

**B.E in Electronics and Instrumentation Engineering** (May 2020)  
Anna University, Chennai, Tamil Nadu, India

## Research Experience

### **Research Assistant** (2022 - 2023)

Adidas- ASU Center for Engagement Lab  
Arizona State University, Tempe, AZ

- Paid appointment, 50% (20 hours/week)
- Conducted industry projects
- Created protocols, using agile methodology
- Recruited and enrolled participants for study
- Conducted data collection sessions
- Maintained data
- Conducted analysis using Machine Learning
- Created reports and communicated the results to the employees for future product development

### **Research Volunteer** (2024 - present)

Development, Experience and Neurocognition (D.E.N) Lab  
The University of Iowa, Iowa city, IA

- Unpaid appointment, 50% (20 hours/week)
- Maintained data
- Conducted Functional Connectivity analysis in fNIRS data
- Created reports for results

## Teaching Experience

### **Teaching Assistant, CHEM:1070 General Chemistry 1** (Fall 2024)

Department of Chemistry  
College of Liberal Arts and Science (CLAS), University of Iowa

- Paid appointment, 50% (20 hours/week)
- Sole instructor for 6 sections in each including 30 undergraduate students.
- Developed and delivered lessons and assessments.
- Conducted office hours twice weekly
- Proctored for exams – Head TA

### **Teaching Assistant, CHEM:1070 General Chemistry 1** (Spring 2024)

Department of Chemistry  
College of Liberal Arts and Science (CLAS), University of Iowa

- Paid appointment, 50% (20 hours/week)
- Sole instructor for 5 sections in each including 30 undergraduate students.
- Developed and delivered lessons and assessments.
- Conducted office hours twice weekly
- Proctored for exams – Head TA

**Teaching Practicum [PSQF:1075 Educational Psychology and Measurement (Spring 2024)]**

Department of Psychological and Quantitative Foundations  
College of Education, University of Iowa

- Supported *Dr. Mitchell Kelly* in the teaching of the course.
- Attended class weekly
- Assisted in grading of papers
- Supported students working on projects

**Teaching Assistant, CHEM:1070 General Chemistry 1 (Fall 2023)**

Department of Chemistry  
College of Liberal Arts and Science (CLAS), University of Iowa

- Paid appointment, 50% (20 hours/week)
- Sole instructor for 6 sections in each including 30 undergraduate students.
- Developed and delivered lessons and assessments.
- Conducted office hours twice weekly
- Proctored for exams

**Teaching Assistant, BIO: 331 Animal Behavior (Spring 2023)**

Department of Chemistry  
School of Life Sciences (SOLS), Arizona State University

- Paid appointment, 50% (20 hours/week)
- Sole instructor for 1 sections in each including 95 undergraduate students.
- Developed and delivered lessons and assessments.
- Conducted office hours twice weekly
- Graded Weekly Assignments

## Publications

Karthikeyan M, Arvind M, Jagan Sandibp NS, Karthik V, Vijayalakshmi S. (2020) Automated Monitoring System for Heart Patients using Ambubot. International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-4, November 2019. DOI: 10.35940/ijrte.D4460.118419

## Other Professional Experiences

**Patient Care Technician (June 2024 - August 2024)**

University of Iowa Healthcare, Iowa City, Iowa, USA

- Paid appointment (40 hours/week)
- 2JCP – Adult Acute Care Medical/Surgical Unit
- Monitored and recorded vital signs regularly.
- Assisted with patient turnover procedures.
- Maintained strict infection control standards.
- Collaborated with healthcare teams to ensure optimal patient care.
- Removed intravenous (IV) lines safely and efficiently.
- Performed blood sugar checkups for patients.
- Basic Life Support (BLS) Provider Certification- CPR and AED, American Heart Association, University of Iowa Hospitals and Clinics, Iowa City, IA (Issued: 07/11/2024; Expires: 07/2026)

### **3D Printing Technician-Prosthodontics** (May 2024 – July 2024)

The University of Iowa College of Dentistry and Dental Clinics, Iowa City, Iowa, USA

- Paid appointment (10 hours/week)
- Managed and operated 3D printing equipment to produce high-quality prosthodontic models and devices.
- Collaborated with faculty and residents to meet specific patient requirements.
- Performed regular maintenance and troubleshooting of 3D printers to ensure optimal performance.
- Processed material order requests and managed inventory for printing materials.
- Ensured the timely and accurate completion of 3D printing projects for clinical use.
- Provided technical support and training to faculty and residents on 3D printing operations.

### **Biomedical Engineer Internship** (January 2021 - July 2021)

MGM Healthcare, Chennai, Tamil Nadu, India

- Paid appointment (40 hours/week)
- Performed preventive maintenance, troubleshooting, and repairs
- Supported faculty by making copies and assembling materials as requested
- Developed a database to track technology check out.
- Conducted daily walkthroughs to get requirements from various departments in healthcare. And documentation.

### **Biomedical Engineer Internship** (December 2019 - January 2020)

Apollo Multispecialty Hospitals, Chennai, Tamil Nadu, India

- Unpaid appointment (40 hours/week)
- Performed preventive maintenance, troubleshooting, and repairs
- Supported faculty by making copies and assembling materials as requested
- Developed a database to track technology check out.
- Conducted daily walkthroughs to get requirements from various departments in healthcare. And documentation.

## Funding

Grants (or funding) Pending

### **Iowa Measurement Research Foundation (IMRF) - \$54,804 (2024)**

Utilizing Eye-Tracking Technology for Assessing Students' Equation Understanding in Science Education

## Memberships

- IEEE- Eta Kappa Nu (2022 - 2023)

## Workshops

### **1st Generation Human Brain Research Workshop** (08/20/2024 – 08/23/2024)

Wessel Cognitive Neurology Lab, University of Iowa, Iowa city, IA

- Gained practical experience in EEG (electroencephalography), TMS (transcranial magnetic stimulation), and fMRI (functional magnetic resonance imaging).
- Learned and practiced the collection, processing, and analysis of human neuroscience data.
- Engaged with faculty and peers in interactive sessions to deepen understanding of neuroscience techniques.

### **fNIRS summer workshop** (06/19/2024 – 06/21/2024)

Huppert lab, University of Pittsburgh, PA

- Gained practical experience in fNIRS.

- Learned and practiced the processing and analysis of fNIRS data.

## Referees

- **Dr. Matthew Lira**  
Assistant professor, University of Iowa  
[Matthew-lira@uiowa.edu](mailto:Matthew-lira@uiowa.edu)  
353 Lindquist Center  
[\(LC\)](#)  
240 S Madison Street  
Iowa City, IA 52242  
[319-335-5557](tel:319-335-5557)
- **Dr. Aurel Coza**  
Center Director and Professor of Practice,  
Center for Engagement Science, Arizona State University  
[aurel.coza@asu.edu](mailto:aurel.coza@asu.edu)  
500 E Veterans Way, Tempe, AZ 85287