Ali Kargarandehkordi

Ph.D. Candidate, Data Analyst/AI Developer, Full-stack Developer
kargaran@hawaii.edu
Personal webpage and portfolio: https://aliknd.github.io/
GitHub (https://github.com/aliknd)
Google Scholar: (https://scholar.google.com/citations?user=GSTYzrIAAAAJ&hl=en)
LinkedIn (https://www.linkedin.com/in/ali-kargaran-dehkordi-b11b0185/?originalSubdomain=fi)
PubMed: https://pubmed.ncbi.nlm.nih.gov/?term=ali+kargarandehkordi

Ph.D. candidate in Computer Science with extensive experience in data analytics, AI development, and full-stack engineering. Proven ability to lead interdisciplinary teams in research and project development, including AI-driven clinical trials and innovative digital health solutions. Demonstrated success in academic research, evidenced by numerous publications and presentations, combined with strong industry experience in developing robust web applications and automated systems. Adept at leveraging emerging technologies to drive impactful solutions in healthcare, robotics, and beyond.

Education

- **Ph.D. Degree in Computer Science**
  University of Hawaiʻi at Mānoa, Honolulu, HI, United States
  Aug. 2023 – Oct. 2025 (expected graduation), PhD Candidacy: Nov. 22, 2024
  GPA: 4/4

- **Master of Science in Technology (Robotics and Autonomous Systems)**
  University of Turku, Turku, Finland
  Aug. 2021 – Aug. 2023

- **Master of Science in Computer Engineering**
  Khatam University, Tehran, Iran
  Sep. 2014 – Jan. 2017

- **Bachelor's Degree in Electrical Engineering**
  Sep. 2009 – June 2013

Work Experiences

- **Research Assistant at UCSF (University of California, San Francisco), USA**
  Jan 2025 – Present
  Job Duties:
  1) Design, develop, and implement AI-driven clinical trials and develop AI solutions for medical applications
  2) Design and development of web-based applications, servers, and databases
  3) Lead and coordinate teams of researchers, developers, and drafters in the design and development of health intervention projects

- **Research and Teaching Assistant at the University of Hawaii at Manoa, USA**
  Aug 2023 – Present
  Job Duties:
  1) Data collection and analysis
  2) Design, develop, and implement AI-driven clinical trials and develop AI solutions for medical applications
  3) Design and development of web-based applications, servers, and databases
  4) Lead and coordinate teams of researchers, developers, and drafters in the design and development of different projects

- *Consultant at the Department of Internal Medicine, Ohio State University (OSU), USA*
  Jan 2025 – Present
  <u>Job Duties:</u>
  1) Develop predictive models focused on participant engagement, adherence, and key outcomes (e.g., activity, diet, body composition, and symptoms) across
  2) Build a chatbot that can help participants each week with setting personalized daily step goals and generating action plans
  3) Data collection and analysis
  4) Design and development of web-based applications, servers, and databases
- *Research Assistant at the University of Turku, Finland*
  Aug 2021 – July 2023
  <u>Job Duties:</u>
  1) Data collection and analysis
  2) Personalization of affective models using machine learning
- *Full-stack Developer at B.B. Farham Engineering*
  Jan 2015 – Aug 2021
  <u>Job Duties:</u>
  1) Design and development of web-based applications, servers, and databases
  2) Coding and designing user interactions and different functionalities
  3) Research and assist in the data analysis, design, and implementation of AI solutions, automated systems, and data communication hardware/software
  4) Lead and co-ordinate teams of engineers, technologists, technicians, and drafters in the design and development of different projects.
- *Electrical/Computer Engineer at Adelpeyman Co.*
  May 2013 – Oct. 2014
  <u>Job Duties:</u>
  1) Develop, maintenance and operating standards for electrical, electronic systems and equipment
  2) The investigation of failures in electrical or electronic systems
  3) Research, design and develop information and communication system's architecture

Scholarships and Awards

- *Outstanding Performance Scholarship at the University of Turku (UTU)*
  2nd year scholarship covering the entire tuition fee for outstanding performance in the 1st year (€12000)

- *Best Teacher of the Year at Net Gostar-e Mahan Co. Shahrekord, Iran*
  Teacher & Instructor at Extensive Web Development Programs

Leadership

- *Personalized Prediction of Stress-Induced Blood Pressure Spikes in Real Time from FitBit Data using Artificial Intelligence*
  Role: Study Lead
  https://pubmed.ncbi.nlm.nih.gov/38526539/

- *Development of Smart Shelf Project - Valmet Automotive EV Power Oy – Finland*
  Role: Project Leader, Back-end Developer
  https://capstone.utu.fi/en-smart-shelf

Mentorship and Advising

- *Mentorship of Undergraduate Students in ICS 496 (Capstone Projects) - University of Hawaii at Manoa and Stanford University*
  Carol Wong,

Kailee Hung,
Kristyn Mimura,
Audrey Soares,
ZhiXin Li
Shizhe Li
Chunzhi Fan

Projects & Industry Experiences

- ### STAND
  Role: Lead developer
  Context: Gamified mobile-based video data collection tool to screen and estimate stress and anxiety
  Description: https://aliknd.github.io/projects/2023-01-15-project-number-6/
- ### BanAware
  Role: Sole developer
  Context: Mobile-based EMA Data Collection Tool to Screen Substance Use
  Description: (https://aliknd.github.io/projects/2023-11-01-project-number-2/
  - ✓ Received many positive feedback from 40 participants recruited for the study for the intuitive interface, user-friendly design, streamlined workflow, and efficient performance
- ### CardioMate
  Role: Sole developer
  Context: Mobile-based EMA Data Collection Tool to Screen Stress Induced Hypertention
  Description: https://aliknd.github.io/projects/2024-02-15-project-number-1/
  - ✓ Achieved a 200% increase in user engagement and 30% in AI model performance
- ### LabelLab
  Role: Lead developer
  Context: Mobile-based Crowdsourcing and Data Collection Tool
  Description: https://aliknd.github.io/projects/2023-10-01-project-number-3/
- ### Valmet Automotive EV Power Oy – Finland
  Role: Project leader, lead developer
  Context: Smart shelf design and development
  Description: https://capstone.utu.fi/en-smart-shelf
- ### ShahrakSanati Financial Application
  Role: Sole developer
  Description: Full description available on my Github
- Full Implementation of Health and Fitness Tracking Devices' APIs (sole developer)

Publications

- **Kargarandehkordi, A.**, Kaisti, M., & Washington, P. (2024). Personalization of Affective Models Using Classical Machine Learning: A Feasibility Study. Applied Sciences, 14(4), 1337.
- **Kargarandehkordi, A.,** Slade, C., & Washington, P. (2024). Personalized AI-Driven Real-Time Models to Predict Stress-Induced Blood Pressure Spikes Using Wearable Devices: Proposal for a Prospective Cohort Study. JMIR Research Protocols, 13(1), e55615.
- **Kargarandehkordi, A.,** Li, S., Lin, K., Phillips, K. T., Benzo, R. M., & Washington, P. (2025). Fusing Wearable Biosensors with Artificial Intelligence for Mental Health Monitoring: A Systematic Review. Biosensors, 15(4), 202.
- Li, S., Fan, C., **Kargarandehkordi, A.**, Sun, Y., Slade, C., Jaiswal, A., ... & Washington, P. (2024). Monitoring Substance Use with Fitbit Biosignals: A Case Study on Training Deep Learning Models Using Ecological Momentary Assessments and Passive Sensing. AI, 5(4), 2725-2738.
- Sun, Y., **Kargarandehkordi, A.**, Slade, C., Jaiswal, A., Busch, G., Guerrero, A., ... & Washington, P. (2024). Personalized Deep Learning for Substance Use in Hawaii: Protocol for a Passive Sensing and Ecological Momentary Assessment Study. JMIR Research Protocols, 13(1), e46493.

- *Kargarandehkordi, A.*, Kaisti, M., & Washington, P. (2023). *Personalization of Affective Models to Enable Neuropsychiatric Digital Precision Health Interventions: A Feasibility Study. arXiv preprint arXiv:2311.12812.*
- *Kargarandehkordi, A.*, & Washington, P. (2023). *Personalized Prediction of Stress-Induced Blood Pressure Spikes in Real Time from FitBit Data using Artificial Intelligence: A Research Protocol. medRxiv, 2023-12.*
- *Kargarandehkordi, A.,* & Washington, P. (2023). *Computer Vision Estimation of Stress and Anxiety Using a Gamified Mobile-based Ecological Momentary Assessment and Deep Learning: Research Protocol. medRxiv, 2023-04.*
- *Qian, Yang, **Ali Kargarandehkordi**, Onur Cezmi Mutlu, Saimourya Surabhi, Mohammadmahdi Honarmand, Dennis Paul Wall, and Peter Washington. "Computer Vision Estimation of Emotion Reaction Intensity in the Wild." arXiv preprint arXiv:2303.10741 (2023).*
- *Qian, Y., Sun, Y., **Kargarandehkordi, A.,** Mutlu, O. C., Surabhi, S., Chen, P., ... & Washington, P. (2024). TikTokActions: A TikTok-Derived Video Dataset for Human Action Recognition. arXiv preprint arXiv:2402.08875.*
- *Azimian, Alireza, **Ali Kargaran Dehkordi**, and Mohammad Tehrani. "A novel systolic array architecture for matrix multiplication circuit design using carbon nanotube technology." Int. J. of Computer Applications 172, no. 6 (2017): 1-4.*
- ***Dehkordi, Ali Kargaran**, Ali Bozorgmehr, and Keivan Navi. "High speed, low power and approximated current mode XOR in secure image applications based on CNT." In 2017 19th International Symposium on Computer Architecture and Digital Systems (CADS), pp. 1-4. IEEE, 2017.*
- ***Dehkordi, Ali Kargaran**, Shirin Kouhi Habibi, Alireza Azimian, and Kasra Sharafodin. "A Novel Ultra High-Speed Chaotic Method For Image Encryption and Decryption Based On Carbon Nanotube Technology." International Journal of Computer Science and Information Security 14, no. 9 (2016): 1122.*

Paper Peer-review

- *Nature Journals:*
  - *Nature Mental Health*
  - *Scientific Reports*
  - *npj Digital Medicine*
  - *Communications Medicine*
- *Springer Nature Journals:*
  - *Cognition, Technology & Work*
  - *Cognitive Computation*
  - *Discover Psychology*
  - *Signal, Image, and Video Processing*
  - *BMC Psychology*
- *IEEE Access Journal*
- *BMJ Open Journal*
- *CHI 2024 (with Dr. Peter Washington)*
- *ICML workshops (with Dr. Peter Washington)*

Technical Proficiencies

- *Full-stack Development*
  1) Back-end: JavaScript (Node.js), PHP (Laravel), Python (Django); experience with databases (MySQL, SQLite, PostgreSQL)
  2) Front-end: ReactJS, React Native, Vue.js, Bootstrap
  3) DevOps: AWS, Git, Docker
  4) CMS & E-commerce: WordPress/WooCommerce

- ***AI, Machine Learning & Robotic***
  1) Data Analytics & Machine Learning: *Data preparation, feature selection & extraction, feature engineering, model development, evaluation, and validation*
  2) Computer Vision: *Experience in developing computer vision applications*
  3) Proficient in Python for AI and development work