

## Ali Kargarandehkordi

Ph.D. Candidate, Data Analyst/AI Developer, Full-stack Developer

[kargaran@hawaii.edu](mailto: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

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- ***Ph.D. Degree in Computer Science***  
*University of Hawai'i at Mānoa, Honolulu, HI, United States*  
*Aug. 2023 – Present (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

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- ***Research and Teaching Assistant***  
*Aug 2021 – Present*  
Job Duties:
  - 1) Data collection and analysis
  - 2) Design, develop, and implement AI-driven clinical trials and developing AI solutions for medical applications
  - 3) Design and development of web-based applications, servers, and databases
  - 4) Lead and co-ordinate teams of researchers, developers, and drafters in the design and development of different projects
- ***Full-stack Developer at B.B. Farham Engineering***  
*Jan 2015 – Aug 2021*  
Job Duties:
  - 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*

Job Duties:

- 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**

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- ***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**

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- ***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**

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- ***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**

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- ***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

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- **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 Kargarandehkordi**, 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 Kargarandehkordi**, 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

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- *IEEE Access Journal*
- *CHI 2024 (with Dr. Peter Washington)*
- *ICML workshops (with Dr. Peter Washington)*

## Technical Proficiencies

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- **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