

Devin Setiawan

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Education

University of Kansas

Master of Science, Computer Science

- GPA: 4.0
- Course Taken: Intro to AI, Intro to ML, Embedded ML, Applied Statistics, Engineering of Learning Algorithms

University of Kansas

Bachelor of Science, Computer Science

Graduated May, 2024

Research Interest

- Interpretable & Explainable Machine Learning
- Individualized & Personalized Machine Learning
- Machine Learning in Medical Diagnostics & Bioinformatics
- AI and Machine Learning Security & Privacy

Publications & Research Contributions

Peer-Reviewed Publications

- Wiranto Y, **Setiawan D**, Watts A, Ashourvan A (2026). “Development of Alzheimer's Disease Risk Score for Future Integrated Primary Care: A White-Box Approach” *Frontiers in Aging Neuroscience*.
- **Setiawan D**, Wiranto Y, Girard JM, Watts A, Ashourvan A (2025). “Individualized machine-learning-based clinical assessment recommendation system” *PLOS Digit Health* 4(9): e0001022. <https://doi.org/10.1371/journal.pdig.0001022>
- Intan I, Harlina S, Karnyoto AS, Nelwan BJ, **Setiawan D**, Yamin A, Puspitasari RE (2025). “Heterogeneous ensemble learning: modified ConvNextTiny for detecting molecular expression of breast cancer on standard biomarkers” *Frontiers in Computer Science*. <https://doi.org/10.3389/fcomp.2025.1569017>
- **Setiawan D**, Karnyoto AS, Intan I, Pardamean B (2024). “ConvNeXt Model for Breast Cancer Image Classification” 2024 6th International Conference on Cybernetics and Intelligent System (ICORIS). <https://doi.org/10.1109/ICORIS63540.2024.10903832>

Other Publications

- **Setiawan D**, Shomaji S, Ashourvan A, Goñi J (2025). “A Concept-Driven Disentanglement Framework for Interpretable Graph Neural Networks in Structure-Function Coupling” *IEEE JBHI* (under review). <https://doi.org/10.64898/2025.12.15.694495>
- **Setiawan D**, Pandey S, Mosconi M, Shomaji S (2025). “Unsupervised Deep Learning Framework for Quantifying Atypical Motor Signatures in ASD” *Wiley Autism Research* (under review).
- Pandey S, **Setiawan D**, Mosconi M, Shomaji S (2025). “Decoding Motor Signatures in Autism from Markerless Video: Interpretable Skeleton-Based Ensembles”

Other Research Contributions

- Developed a privacy-preserving mechanism for Bloom filters using oblivious transfer, supporting the work of Md. Mashfiq Rizvee on “A Persistent Hierarchical Bloom Filter-based Framework for Authentication and Tracking of ICs.”
- Implemented fast string based classification algorithm, motif analysis, and molecular docking simulation that led to discovery of 9 new aptamer candidates used in the detection of ovarian cancer, supporting the work of Dr. Rebecca Whelan

Research Experience

Assurance of Security and Trust for Human and Hardware (ASTHA) Lab

Aug 2024 - Present

Graduate Researcher - ML Security and Privacy, AI/ML in Psychology

- Led an ML project in collaboration with KUMC to study ASD motor patterns, managing the full research pipeline from idea conception and model training to feature explanation
- Presented ASD research findings at the Kansas Intellectual and Developmental Disabilities and authored a pre-print paper on the work
- Proposed and implemented a privacy-preserving mechanism for biometric models to support doctoral research, resulting in a poster presentation at a university research symposium

Computational Neurocognition Lab

June 2023 - Present

Graduate Researcher - AI/ML in Neuroscience

- Led the complete research lifecycle of an individualized machine learning project for clinical medicine, from conception to publication, resulting in a first-author paper in PLOS Digital Health
- Developed a novel, interpretable graph neural network (GNN) framework to model structure-function coupling in the brain, leading the entire project from conception, data gathering, model training, and publication
- Authored a pre-print paper detailing the GNN framework, designed to help experts test hypotheses and interpret model learnings while maintaining high performance

Bioinformatics & Data Science Research Center

May 2024 – Aug 2024

Research Intern - Bioinformatics and Applied ML in Medicine

- Led a complete ML project for breast cancer image classification, managing all aspects from conception to publication as first author in the 2024 6th ICORIS Conference
- Contributed to a second peer-reviewed publication (Frontiers in Computer Science) by performing data cleaning, model training, and evaluation for breast cancer biomarker detection

The Whelan Laboratory

June 2023 – Aug 2023

Research Assistant - AI/ML in Analytical Chemistry

- Developed and documented in-silico analysis procedure to automate the selection of ovarian cancer-detecting aptamers from large-scale data
- Implemented fast string-based classification, motif analysis, and molecular docking simulations, contributing to the discovery of 9 new aptamer candidates

Teaching Experience

MATH 115 Calculus I

Aug 2024 - Present

Graduate Teaching Assistant

- Lead in-person class sessions in a flipped-classroom format, reinforcing lecture concepts and guiding collaborative problem-solving
- Serve as the primary instructional contact between students and the course coordinator, addressing questions and ensuring course continuity
- Support assessment and student learning through exam proctoring, grading, and tutoring in departmental help rooms

MATH 115 Calculus II

June 2025 - Aug 2025

Graduate Teaching Assistant

- Independently designed and delivered the entire online course, including curriculum, canvas course design, video lectures, slides, homework, and exams
- Hosted daily virtual office hours to provide personalized instruction and academic support
- Managed all aspects of instruction, assessment, and student communication, ensuring consistent engagement and learning outcomes

Undergraduate Teaching Assistant

- Assisted lead instructors during discussion sessions by supporting classroom activities and clarifying key concepts for students
- Provided individualized tutoring and contributed to exam grading and feedback to support student mastery

Selected Projects

MCUNet Reproduction: Tiny Deep Learning on IoT Devices

Embedded and Real Time Computer Systems Project

- Reproduced the MCUNet: Tiny Deep Learning on IoT Devices (NeurIPS 2020) framework for person detection on STM32 microcontrollers using TinyNAS and TinyEngine
- Analyzed and addressed deployment challenges with camera-integrated inference, leading to a focused reimplementation of TinyNAS
- Demonstrated TinyNAS adaptability by integrating a ResNet-style backbone, TensorFlow Lite pipeline, and Rock-Paper-Scissors dataset

Deep Learning for IMU Classification

Machine Learning Project

- Developed deep learning models to classify human activities (no activity, walking, bending) from Inertial Measurement Unit (IMU) time-series data
- Compared multiple architectures and evaluated performance using accuracy and F1-score metrics, presenting model interpretability visualizations
- Explored transfer learning for personalized models and assessed model compression techniques for potential edge deployment

Interpretable Scorecard Model for Early Diabetes Classification

Advanced Data Science Project

- Developed predictive models using Logistic Regression, Random Forest, and Gradient Boosting to identify individuals at risk of early-stage diabetes
- Implemented the FasterRisk algorithm to generate an interpretable clinical scorecard for transparent decision
- Produced a comprehensive presentation and report highlighting model performance and interpretability insights

Program Synthesis for Semantically Wrong Code Fixing (PROSE x Llama)

Program Synthesis Project

- Inspired by the JIGSAW paper, which aims to improve LLM generated code by fixing semantically wrong code
- Used Microsoft PROSE SDK to generate AST-to-AST transformation for fixing semantically wrong code
- Implemented a working prototype of the PROSE x Llama system using Python and C#

TinyML Arithmetic (Arithmetic Operations Using CNN on Edge Devices)

Embedded ML Project

- Generated datasets for digits and arithmetic operators using the MNIST dataset from TensorFlow and generated an operator dataset by capturing handwritten arithmetic operators resulting in a comprehensive dataset combining digits and operators, enabling robust model training
- Preprocessed the MNIST and operator datasets to create a unified dataset suitable for training using OpenCV (cv2) for image processing resulted in a well-prepared dataset that facilitated high model accuracy, with training results showing promising accuracy between 86-94%
- Deployed the trained model on a user-friendly platform using Streamlit to showcase its functionality and display sample test data with inference values.

ML Sandbox (Web Application for Automated Machine Learning Training and Deployment)

Software Engineering II Project

- Designed an appropriate tech stack and architecture using Streamlit for the front end, FastAPI for the backend, and an SQL database for data storage, as well as implementing authentication using JWT, resulting in the successful deployment of a scalable and secure architecture that supports seamless machine learning workflows
- Built the "Autodidact" page, which allows users to upload their training files and set their ml training preferences through the website, enabling users to initiate and manage their machine learning training with minimal effort, resulting in a user-friendly interface that streamlined the machine learning training process
- Developed a feature allowing users to upload pre-trained models, rate other users' models, and download models from others, fostering a community of machine learning practitioners who could easily share and benefit from each other's work, enhancing the collaborative potential of the application.

Jayhawk Aero Design

Data Science and Intelligence Team Member

- Built and managed a website for Jayhawk Aero Design that consist of analysis tools for optimization and data science team using Streamlit and Plotly, resulting in sensitivity analysis capability for AIAA rc plane competition

Leadership & Community Engagement

Indonesian Student Association at KU (ISAKU)

Vice President

- Organized large-scale community events, including a free *International Prom* attended by 200+ students representing 8+ countries
- Secured over \$2,000 in university funding and coordinated multicultural food, games, and activities to foster cross-cultural connection and inclusion
- Supported incoming international students by volunteering at monthly ISS workshops covering culture shock, burnout, and campus adjustment

KU Jiu-Jitsu Club

Vice President

- Led the post-COVID rebuild of the organization with a focus on accessibility and inclusion, growing the roster to 100+ active members and alumni
- Negotiated with the Recreation Center to waive membership fees for students by substituting club fundraising, allowing the club to remain entirely free
- Designed and led thrice-weekly, beginner-friendly practices to create a safe environment for students of all physical abilities and backgrounds

Philosophy for the Masses Club

Secretary & Founding Member

- Co-founded a new philosophy club to make philosophical discussion accessible to all majors through open, casual, discussion-based meetings
- Conducted outreach which includes tabling, social media engagement, and campus visibility efforts to recruit members and build awareness
- Grew the club from inception to 15+ active members, establishing a welcoming environment for interdisciplinary philosophical dialogue

Skills

- Python: Pytorch, Tensorflow, Scikit-learn, Pandas, Matplotlib, Plotly, Seaborn
- HTML, CSS, JS, Streamlit, SvelteKit, FastAPI, SQL, AWS