

Michael Vanden Heuvel

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EDUCATION

University of Washington <i>Doctorate of Philosophy in Computer Science</i>	Sept. 2026 – Present
University of Wisconsin - Madison <i>Bachelor of Science in Computer Science, Certificate in Business Fundamentals</i>	Sept. 2018 – Dec. 2022

RESEARCH PROJECTS

Informatics Skunkworks Group – University of Wisconsin <i>Renal Cell Carcinoma Transfer Learning - Undergraduate Researcher</i>	Jan. 2020 – Dec. 2022 Sept. 2022 - Dec. 2022
- Developed data transformation pipeline to clean data and make MRI scans usable for neural network - Utilized transfer learning to train a ResNet convolutional neural network model to classify renal cell carcinoma as low or high grade	
<i>Renal AML Classification and Regression - Undergraduate Researcher</i>	Jan. 2022 - May 2022
- Led a team of undergraduate students in developing machine learning models - Developed and evaluated machine learning and deep learning models to predict growth rate of renal AMLs and to classify renal AMLs as high or low growth	
<i>Pancreatic Cyst Classification - Undergraduate Researcher</i>	Jan. 2020 - Jan. 2021
- Developed machine learning models to classify pancreatic cysts as potentially cancerous or noncancerous to reduce unnecessary surgeries - Implemented techniques such as oversampling, undersampling, and metric selection to mitigate the effects of an imbalanced dataset - Identified key features in the model to identify medically relevant features - Acted as the lead of a 3-student development team to delegate tasks and maintain development schedule	

PUBLICATIONS AND WORKSHOPS

- Awe, A. M., **Vanden Heuvel, M. M.**, Yuan, T., Rendell, V. R., Shen, M., Kampani, A., Liang, S., Morgan, D. D., Winslow, E. R., & Lubner, M. G. (2022). Machine learning principles applied to CT radiomics to predict mucinous pancreatic cysts. *Abdominal Radiology*, 47, 1–11. <https://doi.org/10.1007/s00261-021-03289-0>
- Vanden Heuvel, M. M.** (2022, October 22) *Impact of machine learning focused research projects on my career path: an undergraduate perspective* [Virtual Workshop] Enhancing Undergraduate Research With Machine Learning, Madison, WI.
<https://skunkworks.engr.wisc.edu/free-workshop-enhancing-undergraduate-research-with-machine-learning/>

AWARDS

National Science Foundation CSGrad4US Fellowship <i>Three years of funding, including stipend and cost of education allowance.</i>	2024
Microsoft Above and Beyond Award	2024

WORK EXPERIENCE

Microsoft <i>Microsoft Sentinel - Software Engineer</i>	Mar. 2023 – Oct. 2026 Redmond, WA
- Owned full-stack development of Microsoft Sentinel Data Transformations, building React UX and .NET services backed by Cosmos DB, Service Bus, and Log Analytics - Designed and implemented an asynchronous API and worker architecture that supported long-running operations and unblocked a high-priority customer scenario - Built transformation orchestration, concurrency controls, validation, and conflict handling to reduce failures and improve service reliability - Led a product-led Sentinel onboarding experience launched to 100% of eligible customers, onboarding 16 customers and adding telemetry, dashboards, monitors, and customer-driven improvements	

- Delivered Bicep and workload identity support for Sentinel Repositories, removing blockers to general availability for a capability used in approximately 25% of analytic-rule management activity
- Took ownership of the Data Transformations UX, increasing test coverage by 15–24 percentage points while improving accessibility, error handling, and preview and general-availability readiness

Software Engineer Intern

May 2022 – Aug. 2022

- Improved Microsoft Sentinel's front-end experience by fixing visual bugs and improving compatibility for themes
- Developed unit tests and implemented StyleCop to enforce stylistic requirements resulting in saved time during code review and consistent and clean code across repositories
- Collaborated with team's Software Reliability Engineer to implement time-to-live for recommendations database to ensure only relevant recommendations remained in the database
- Contributed to Microsoft's Diversity & Inclusion initiative by planning and hosting arts and crafts events to raise money for charities

Capital One

June. 2021 – Aug. 2021

Software Engineering Intern

Remote - McLean, VA

- Developed Apache Camel policies based on existing REST APIs to increase flexibility between policy versions and reduce onboarding time for future developers interacting with Capital One's platform
- Wrote Apache Camel policy to route image of customer's identification securely from customer to encrypted storage and machine learning model as part of authentication flow for accessing virtual credit card

Calimetrix

Jan. 2021 – June 2021

Software Development Intern

Madison, WI

- Trained a YOLOv4 object detection model to automate the detection of defects in MRI test objects and reduce time needed for quality control of MRI test objects
- Developed pipeline to convert MRI scans to 2D images, align images to a template, and detect defects

LEADERSHIP & SERVICE

SoundBio Lab

Oct. 2025 - Nov. 2025

Assistant Course Instructor

Seattle, WA

- Assisted in instructing a 4-week "Microbiology Essentials" course in a BSL-1 wet lab, guiding students through fundamental laboratory protocols including sterile technique, bacterial isolation, and microscopy
- Supervised experiments characterizing bacterial physiology, including Gram staining to differentiate cell envelopes and disk diffusion assays to test antibiotic susceptibility
- Facilitated discussions on the applications of synthetic biology and microbial resistance, connecting laboratory results to broader biological concepts in food production and healthcare

Microsoft Security Disability ERG

Jan. 2024 – Apr. 2026

Executive Team Member

Redmond, WA

- Planned and hosted quarterly Microsoft Security Disability Employee Resource Group townhalls with executive guest speakers to raise awareness of disabilities

University of Wisconsin - Data Science Programming I

Jan. 2022 – Dec. 2022

Peer Mentor

Madison, WI

- Guided students through weekly projects and practice problems during weekly lab section and office hours
- Organized and led mock exam and pre-exam study sessions attended by over 100 students
- Developed unique exam questions based on lecture and project material in coordination with other Peer Mentors
- Prepared exams and proctored sections for midterm and final exam

Google Developer Student Club

Aug. 2021 – Dec. 2022

Event Management Lead

Madison, WI

- Tripled chapter membership by hosting events to develop members' professional and technical skills
- Co-founded and hosted an annual hackathon twice with over 100 participants to foster community and enhance technical skills of club members

Microsoft TEALS

Aug. 2020 – June 2022

Volunteer Teaching Assistant

Remote - Shiocton, WI

- Assisted in lesson planning and led lessons for introductory programming class teaching Snap! and Python for a rural high school
- Provided individualized lab support to high school students in an introductory computer science course

TECHNICAL SKILLS

Languages: Python, JavaScript, C#, Java, HTML, CSS, MATLAB, R

Frameworks: React, TypeScript, .NET, PyTorch, PyTorch Geometric

Developer Tools: Git, Azure, VS Code, Visual Studio

Libraries: scikit-learn, pandas, NumPy, Matplotlib, SHAP, TensorFlow, Recharts