Michael Vanden Heuvel

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Education

University of Wisconsin - Madison Madison, WI

Bachelor of Science in Computer Science, Certificate in Business Fundamentals *Sep. 2018 – Dec. 2022*

Industry Experience

Microsoft March 2023 – Present

Microsoft Sentinel - Software Engineer *Redmond, WA*

- Developed internal API endpoints for Microsoft Defender XDR customer onboarding, offboarding, and metadata retrieval using Azure Functions
- Utilized React with TypeScript to develop a responsive frontend for the Microsoft Defender XDR onboarding wizard and settings page
- Rewrote legacy Kockout code in React for Microsoft Sentinel settings and pricing pages
- Contributed to the upkeep of services by implementing monitors, writing unit tests, and contributing to internal bug bashes

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
- Leveraged open source libraries to convert MRI scans to 2D images, align images to a template, and detect defects
- Utilized version control and SDLC best practices to create defect detection application with object detection model

Research Projects

Informatics Skunkworks Group – University of Wisconsin Jan 2020 – Dec. 2022

Pancreatic Cyst Classification - Undergraduate Researcher *Jan 2020 - Jan 2021*

- Developed machine learning models to classify patients' pancreatic tumors as mucinous/nonmucinous and malignant/benign to reduce unnecessary surgeries
- Created XGBoost and random forest models with oversampling and undersampling using Python and Scikit-learn
- Analyzed and processed 496 features for 103 pancreatic tumor patients from University Hospital's dataset
- Acted as a lead of a 3-student development team to delegate tasks and maintain development schedule
- Utilized SHAP to analyze feature impact on model output

Renal AML Classification and Regression - Undergraduate Researcher *Jan 2022 - May 2022*

- Guided two subteams of undergraduate students in developing machine learning models
- Developed and evaluated machine learning and Neural Network models to predict growth rate of renal AMLs and to classify renal AMLs as high or low growth

Renal Cell Carcinoma Neural Network - Undergraduate Researcher *Sep 2022 - Dec 2022*

- Developed data transformation pipeline to clean data and make MRI scans usable for Neural Network
- Utilized transfer learning to train Convolutional Neural Network to classify Renal Cell Carcinoma as low or high grade

Publication

- Awe, A.M., **Vanden Heuvel, M.M.**, Yuan, T. et al. "Machine learning principles applied to CT radiomics to predict mucinous pancreatic cysts," *Abdominal Radiology*, vol. 47, pp. 221–231, 2022. https://doi.org/10.1007/s00261-021-03289-0

Technical Skills

Languages: Python, JavaScript, C#, Java, HTML, CSS, MATLAB
Frameworks: React, TypeScript, .NET, PyTorch
Developer Tools: Git, Azure, VS Code, Visual Studio, Eclipse
Libraries: scikit-learn, pandas, NumPy, Matplotlib, SHAP, TensorFlow, Recharts