Patrick Soga

psoga@nd.edu — https://ajb117.github.io

Education

University of Notre Dame   Aug 2018 – Dec 2022
B.S. Computer Science, B.A. Philosophy - 3.85 GPA   *Notre Dame, IN*

Papers

1. Steven J. Krieg, William C. Burgis, Patrick M. Soga, and Nitesh V. Chawla. Deep ensembles for graphs with higher-order dependencies. 2022 (under review)

Research Experience

Notre Dame Department of Computer Science   February 2022 – Present
Undergraduate Research Assistant   *Notre Dame, IN*

- Developing a novel graph automaton-based positional encoding for graph transformers with Professor David Chiang. Paper in-progress.
- Assisted in developing an ensemble-based approach to applying neural methods for higher-order networks (HONs) under Professor Nitesh Chawla.

REU at Notre Dame   June 2020 – August 2020
REU Participant   *Remote*

- Participated in NSF-funded research for developing software for guiding drones assigned to emergency response missions under Professor Jane Cleland-Huang.
- Trained computer vision models for classifying weather based on video provided by drones.

Work Experience

Lucy Family Institute for Data and Society   June 2021 – May 2022
Undergraduate Software Developer   *Notre Dame, IN*

- Worked under Prof. Nitesh Chawla to build apps for HIMFG, a premier hospital in Mexico City, Mexico.
- Wrote web and mobile apps for gathering and managing patient medical information and assessing cancer patient risk.
- Apps are both currently deployed and actively used hospital staff and families.

FloVision Solutions   July 2021 – March 2022
ML & Software Engineer   *Remote*

- Wrote Python scripts and infrastructure for ML ops, pipelining annotation data and deploying inference jobs with Docker using Google Cloud Platform.
- Worked on tuning CNN architectures using transfer learning techniques for recognizing and classifying images of food with TensorFlow for food waste reduction.

Million Marker   February 2021 – May 2021
Software Engineering Intern   *Palo Alto, CA*

- Developed OCR functionality using Google's Tesseract and Amazon's Textract for extracting ingredients from product labels.

RJ Reliance   December 2020 – February 2021
Software Development Intern   *Remote*

- Wrote Python scripts to generate random datasets detailing job requisitions, job applications, and other data pertaining to HR according to weights assigned to parameters such as ratio of managers to workers, propotions of worker ages, etc. for showcasing core company products.
- Designed, implemented, and deployed a web frontend and corresponding REST API to interface with a MongoDB database.

CS for Good   August 2019 – August 2020
Non-Profit Service Project, Team Member   *South Bend, IN*

- Worked in a team of 4 to create a database and dashboard for Guate Te Incluye, a non-profit organization helping recently deported Guatemalan migrants reintegrate into the labor force.
- Wrote API endpoints in NodeJS for managing data of over 1100 workers.

Skills

Programming: PyTorch, Keras, Python, C, Dart, JavaScript, TypeScript, Bash, PostgreSQL, ReactJS, Angular, AngularJS, NodeJS, Flask

Software: Ubuntu, Google Cloud Platform, Amazon Web Services, Google Firebase

Awards, Distinctions, and Activities

- Dean's List: top 30% of undergraduate students within major (2018-2021)
- iTREDS Scholar: competitive program for training students in data science for social good
- ACM, Linux User Group, Data Science Club
- Philosophy club president (Fall 2020)
- Building Bridges peer mentor (2021-2022): mentorship program for demographically underrepresented first-year students in computer science

Miscellaneous

- Citizenship: United States of America
- Languages: English (native), Japanese (basic)