MIKE ZENG

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EDUCATION

B.S Computer Science & Math, University of Iowa   Expected May 2027
Courses: Data Structures, Algorithms, Operating Systems, Computer Networks, Software Engineering I & II, Automata Theory, Compilers, Distributed Systems, Computer Architecture, Linear Algebra, Statistical Computing, Linear Regression

EXPERIENCE

Researcher   Jan 2025 - Present
University of Iowa SPARTA Lab [PI: Dr. Rishab Nithyanand]   *Iowa City, IA*

- Crawled 250+ websites by engineering a proxied web scraper using Selenium and OpenWPM to conduct a study of digital advertising trends by geolocation.
- Automated a weekly, high-volume collection of 5GB of advertisement images for downstream analysis, developing a robust cronjob-Javascript solution that utilizes DOM manipulation and CSS matching to accurately extract ad elements.
- Performed cosine-similarity semantic analysis of 1000+ collected ads images by implementing a data pipeline integrating the Google Cloud Vision API.
- Collaborated with a professor in an academic environment, participating in weekly meetings and reading academic papers to stay current on legal and technical trends.

Research Intern   Oct 2024 - Jan 2025
Iowa Institute of Hydraulic Research [PI: Dr. Omer Mermer]   *Iowa City, IA*

- Architected a web platform utilizing satellite data to predict harmful algae blooms, proposing a solution that could reduce onsite visit costs by 100%.
- Developed a Google Earth Engine JavaScript filter using advanced mathematical algorithms to process over 2,000 data points and achieve 98% prediction accuracy.
- Implemented a **streamlined download and export** to ArcGIS/QGIS through data packing into a **KML file**, hitting an **user efficiency increase** of **75%**.

PROJECTS

Handyman Services Application [mzen17/handyman-services-application]

- Successfully lead a team of 4 to develop a full-stack application for customer relationship management, architecting the system with Django and Angular.
- Sent 100+ real-time event notifications by developing a scalable background task system using Celery and Redis to power a calendar reminder service.
- Ensured 100% availability by orchestrating a continuous containerized deployment to Google Kubernetes Engine (GKE) & Cloud SQL.
- Improved application performance to the 95th percentile by engineering a continuous integration pipeline with static analysis (SAST) and Lighthouse performance artifacts.

Shards of the Grid [mzen17/Shards-of-the-Grid]

- Led a team of **5 students** to develop a **SaaS web game** using **Ruby on Rails** on **Heroku** to achieve a peak of **30+ players**.
- Established BDD and TDD tests to achieve a **code coverage of 97.1%** using **Cucumber** and **RSpec**, visualized with **SimpleCov**.

Homelab

- **Deployed** 20+ Linux virtual machines on KVM for load balancing (Nginx), Redis, PostgreSQL, Grafana monitoring, and hosting 7+ consumer applications.

SKILLS

Languages: Java, C/C++, C#, Python, JavaScript/TypeScript, Rust, HTML/CSS, Ruby, SQL, SAS
Frameworks: Svelte, React, Django, Rails, FastAPI, TailwindCSS/Bootstrap, TensorFlow, PyTorch
Technologies: AWS, GCP, Postgres, MySQL, Git, Linux, NGINX, Unreal Engine, Unity