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Agata U. Kargol

Skills

Languages
- **Native:** English, Polish
- **Proficient:** Python2, Python3, SQL
- **Past:** Matlab, C, C++, bash, JavaScript

Frameworks: Flask, Pyramid, Django, SQLAlchemy, alembic, pytest, pandas, celery

Technologies: PyCharm, git (preferred), SVN, mercurial, *nix, PostgreSQL, RabbitMQ, Redis, Cassandra, Jenkins, ansible, Docker, Kubernetes

Professional Experience

2015-2017 **Software Development Engineer (Pupil Team)** *Zonar Systems, Inc.* Seattle, WA

Rider Verification/Route Board: bus driver/dispatcher facing solution providing feedback on student location

- Greenfield project where team owned setup, maintenance, and all work on both infrastructure and software
- Acting lead in MVP/Beta phase, with positive feedback both internally and from Beta customer
- Assisted Product Owner in trimming scope for an on-time delivery of MVP
- Coordinated with Android contracting team on technical prerequisites and feasibility of requested features
- Routinely used as test project/team for evaluation of new products, technologies, and processes
- Key member of effort to move product to the cloud (Google Cloud Platform, Docker, Kubernetes)
- Worked on both RESTful API layer and ETL process to ingest data from internal and external sources
- Stack includes Python3, flask, SQLAlchemy, Postgres, Angular 1.5, pandas, Jenkins, ansible
- First product at Zonar to have >75% test coverage for core components, CI/CD pipeline

MyBusVue: a parent facing web app which provides near-real time bus tracking and student scan information

- Inherited legacy codebase developed by 3rd party
- Team rearchitected, rebuilt underlying RESTful API and backend services, aiming for stability and testability
- First product at Zonar to have automated functional, unit, performance, and E2E tests
- Python2 (ported to Python3), pyramid, SQLAlchemy, JavaScript, Angular 1.5, celery, rabbitMQ, Postgres, Cassandra, and Redis

2011-2015 **Graduate Research Assistant** *Washington Univ. in St. Louis*

Archive of Many Outdoor Scenes (AMOS) Development

- Worked AMOS, the world's largest archive of outdoor webcams, which contains over 500 million images
- Built and managed AMOS crowdsourced tasks with Amazon Mechanical Turk
- Developed backend features and optimizations as part of a team
- Django, Python2, JavaScript, Matlab, AWS Mechanical Turk

Pedestrian Detection in Webcam Imagery for Public Health Applications

- Explored use of existing machine learning tools and algorithms for pedestrian detection in webcams
- Improved detection algorithms through background subtraction and shadow detection methods

Point-and-click Object Manipulation Interface for PR2 Robot

- Developed point-and-click interface for object manipulation for Willow Garage's PR2 robot to allow the PR2 to act a surrogate for a paraplegic user
- Learned about robot functionality and limitations, interface design based on user requirements, and the mathematical concepts of robot visual processing
- Required ROS, Python, C++, Qt framework, OpenCV

Education

May 2015 **Master of Science in Computer Science** *NSF Graduate Research Fellow*
Washington University in St. Louis, St. Louis, MO
Select Coursework: Mobile Robotics, Computer Vision, Machine Learning

May 2011 **Bachelor of Science in Computer Science** *cum laude*
University of Alabama, Tuscaloosa, AL
Minors: Mathematics, Computer-Based Honors Program, Telecommunication and Film

Select Publications

[1] A. Hipp, D. Adlakha, R. Gernes, A. Kargol, and R. Pless, "Learning from outdoor webcams: Surveillance of physical activity across environments", in *Workshop of Big Data and Urban Informatics*, 2014.

[2] A. Hipp, D. Adlakha, R. Gernes, A. U. Kargol, and R. Pless, "Do You See What I See: Crowdsource annotation of captured scenes", in *SenseCam*, 2013.

Outreach and Leadership

2013 Invited expert panelist on *"Frameworks to Guide Image Annotations"* at *SenseCam*
2012 Participated in the PR2 Workshop held in Freiburg, Germany