Frank Hardisty

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I am interested in joining a Seattle-area team that leverages leading-edge technology to deliver delightful internet services

Work Experience

Software Engineer II, Expedia ***November 2017 – Present***
SDE II, MeSo Data Platform team, Expedia Media Services advertising.expedia.com

- Within a month of joining team, deployed improvements to production of high-throughput, low latency Apache Storm-based cluster-compute services running on AWS
- Won teamwork award for development of SalesForce integration using AWS Lambda
- Root-caused periodic failure in key Redis db with over 160 million entries. Designed and implemented Redis db upgrade, with no downtime, while doubling capacity
- Developed scalable workflows using Kafka, Flink and Airflow for streaming and ETL, leveraged custom Apache Spark operators on Hadoop clusters
- Developed Terraform modules for AWS cross-account access, saving weeks of engineering effort for multiple teams
- Continually contribute clear documentation, process improvements, and mentoring for junior team members

Senior Software Engineer, CommerceHub ***October 2016 – September 2017***
Senior Developer on ProductStream team commercehub.com/productstream

- Lead team in moving applications from in-house to AWS
- Improved quality of each layer of application, via high code quality and performance:
    - Operations (Chef and AWS), performed 14 releases to production during one week, with no roll-backs or rework
    - Database (MongoDB), re-wrote problematic data versioning module, reducing average time spent on modifications by over 80%
    - Services (Java with DynamoDB), designed and implemented dynamic table instantiation strategy, allowing key service to scale 10x
    - Web client (React), updated WebPack from 0.x to 3.x in less than half the expected time, enabling early delivery on a key customer request
- Designed and implemented REST-ful API for data ingress, which aided inter-team collaboration
- Mentored junior developers, ensuring adherence to process and high code quality

Software Development Engineer III, Zonar Systems ***July 2015 – September 2016***
Senior Developer on MyBusVue team mybusvue.com

- Successfully promoted unit and functional testing approach to developing robust software
- Refactored each layer of application, improving code quality and performance:
    - Database (PostgreSQL with PostGIS), restructured DB resulting in 2x performance
    - Services (Celery task queue with RabbitMQ), rewrote parallel computation tasks
    - Application (Pyramid with SQLAlchemy ORM), restructured data models for clarity
    - Web cache (Redis), decreased response time of key query from 1200 ms to 70 ms
    - Web client (AngularJS), reduced average wait on home page from 2000 ms to 50 ms
- Designed and implemented multi-tier data caching , aiding scaling from 30 to 20,000 users
- Designed and implemented REST-ful API used by Android, iOS, and Web clients
- Improved accuracy of core bus-arrival prediction algorithm
- Mentored junior developers, ensuring adherence to process and high code quality
- Supervised work of remote teams producing Android and iOS clients

Faculty, Penn State Department of Geography ***September 2007 - June 2015***

Architect and lead developer for GeoTxt project geotxt.org
- Conceptualized GeoTxt as a web service and externally funded project
- Designed REST-ful API, with stateless architecture and horizontal scaling
- Supervised development of crowd-sourced identification of place-names from Twitter

Wrote and taught Cloud and Server GIS graduate course e-education.psu.edu/geog865
- Author of graduate level course in cloud approaches to Geographic Information Systems
- First course that lead students through setting up their own GIS servers on AWS
- Designed and implemented AWS architecture to surmount difficulties in license server

Architect and lead developer for STempo project geovista.psu.edu/stempo/
- Delivered multiple complete UI redesigns to client
- Designed polyglot approach allowing Python and Java classes to coexist on same runtime
- Mentored junior developers with no previous knowledge of Java into productive roles
- Developed safe concurrency approach for efficient use of computational resources

Lead developer for GeoViz Toolkit geovista.psu.edu/geoviztoolkit/
- Lead developer since 2000
- Designed component-based approach using introspection and reflective invocation to automatically connect components
- Mentored junior developers with no previous knowledge of Java into productive roles
- Lead team into unit testing and continuous integration approach to developing robust software

Technical Skills

Programming Languages:	Production experience in Java 1.1 – 11.0, Bash, Python (CPython and Jython) 2.6, 2.7, 3.+, JavaScript 1.3-1.8.5, Groovy, Scala, and Terraform. Some experience in C, C#, Visual Basic, R, Pascal, Lisp, Prolog, and PHP
Cloud Computing:	Amazon Web Services (EC2, VPC, S3, RDS, DynamoDB, Route 53, SQS, IAM, etc.), Microsoft Azure (Virtual Machines, SQL Database, Document DB), Terraform, CloudFormation, aws-cli, Linux
Programming Methodologies:	Agile (Scrum and Kanban), Continuous Integration (Hudson and Jenkins), UML, Software Patterns (GoF), Unit Testing, Formal Verification
Java Technologies:	REST style Web Services, SOAP and WSDL services, Ant, Maven (1-3), JNI (Java Native Interface), Tomcat, GeoTools, Jenkins, JDBC, RMI (Remote Method Invocation), Colt, JTS (Java Topology Suite), Servlets
Data Storage:	Relational Databases (PostgreSQL with PostGIS, DB2, SQL Server, Hive, Presto), DynamoDB, Redis, MongoDB, Lucene and Solr Indexes
Mathematical Expertise:	Machine Learning (AI), Natural Language Processing, Multivariate Statistics, Spatial Statistics, Decision Trees, Neural Networks, Computational Geometry, Non-Euclidean Geometry

Scalable Computing:	Storm, Flink, Hadoop, Kafka, Akka, Parallel algorithms, stateless services, Big Data interactivity, designed middleware services using message-based, object broker, and RPC approaches
User Interfaces:	JavaScript, HTML, CSS, jQuery, Bootstrap, Angular 1, React. Web mapping with Google Maps, Bing Maps, and custom with OpenLayers and Leaflet. Visualization and graphing on multiple platforms, including D3.js.

Education

PhD in Geography (Geographic Information Systems) 2003, Penn State University
MA in Geography (Quantitative Geography) 1999, Ohio State University