PETER ZHANG

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SUMMARY

Peter is experienced with building data pipelines, designing, managing and automating cloud infrastructure on AWS, Azure, and Google Cloud. He is also well versed in modern web development with Node.js and React, with extensive backend development experience in Python, TypeScript C++ and Rust. He has previously worked on the research and development of algorithms in a massively parallel environment, such as on GPUs and supercomputers.

WORK EXPERIENCE

Kasvu Labs Oy   **Helsinki, Finland**
Head of Engineering and Data Science   *Jul 2021 - Current*

- Developed internal R&D tools for client with TypeScript, React, Python, Rust and PostgreSQL by working side-by-side with researchers on the client side. Project scope includes:
    1. New web interface for data visualization (TypeScript, React)
    2. ETL processes and adaptors for various data sources (Rust, Python, PostgreSQL)
    3. Infrastructure and data pipelines supporting the project (Azure, Terraform, Kubernetes)
- Implemented data pipelines for an AI natural language processing model used in a publicity campaign. Managed infrastructure for the website of the same campaign.
- Contributed code to the company's own product, written with React Native.
- Recruited a software engineer and a data scientist to the team.
- Represented company at the WebSummit 2021 conference.

S Group (Suomen Osuuskauppojen Keskuskunta)   **Helsinki, Finland**
Senior Software Engineer   *Oct 2020 - Aug 2021*

- Resolved daily issues in the order management system.
- Implemented new orders- and payments-related features in webshop backend.
- Developed and maintained integrations with third-party last-mile delivery/pickup systems.

Keywords: TypeScript, Serverless, AWS

Reaktor Innovations Oy   **Helsinki, Finland**
Senior Software Engineer   *Nov 2016 - Oct 2020*
Worked on various client and internal projects in several engineering roles.

Reaktor Education Platform   **Helsinki, Finland**
Principal Fullstack/Cloud Infrastructure Engineer   *Jan 2020 - Oct 2020*

- Lead development of Reaktor Education platform, an application built on React, NextJS, TypeScript and AWS.
- Worked with UX/UI designers to materialize designs into code.
- Oversaw day-to-day operations of development activities.
- Redesigned and implemented the entire infrastructure architecture.

Keywords: Docker, TypeScript, AWS, Terraform

Adidas China Digital Hub   **Shanghai, China**
Backend Engineer   *Sept 2019 - Dec 2019*
Coded and monitored backend systems that were essential to run successful consumer-facing events.
Keywords: TypeScript, Docker, Kubernetes, AWS

Lynk & Co.   **Helsinki, Finland and Göteborg, Sweden**
Backend/Cloud Infrastructure Engineer   *Apr 2019 - Jun 2019*
Set up and managed runtime infrastructure on Azure.
Keywords: Azure, Terraform, TypeScript, Docker, Kubernetes

Kesko Oyj   **Helsinki, Finland**
Software/Cloud/Data Engineer   *Jan 2018 - Jan 2019*
Data Engineer on the Kesko Artificial Intelligence team, providing recommendation services to the Kesko grocery and hardware chains.

- Managed computing infrastructure on Amazon Web Services
- Implemented monitoring, task scheduling, and management tools for the computing environment
- Optimized data pipelines, storage and service speed in the production environment

Keywords: Python, Terraform, AWS, Data Science, Docker

Yleisradio Oy   **Helsinki, Finland**
Data Engineer   *Apr 2017 - Jan 2018*
Worked as a part of the Finnish Broadcasting Corporation (YLE) AI team making recommendation engines.
- Implemented Web APIs for the recommendation service
- Provided support for the recommendation service infrastructure
- Optimized recommendation algorithms with C++ and CUDA, also implemented a pure CUDA version of latent dirichlet allocation (LDA) in CUDA C++

Keywords: Python, Terraform, AWS, C++, CUDA, Data Science, Docker

Internal Projects at Reaktor   **Helsinki, Finland**
Fullstack Engineer   *Nov 2016 - Apr 2017*
Worked on the development of internal projects using Node.js, React and AWS.

Keywords: Node.js, React, CSS, Terraform, Docker

Center for Research in Extreme Scale Technologies, Indiana University   **Bloomington, IN, USA**
Graduate Research Assistant   *Jun 2014 - Jul 2016*
As a research assistant at the Center for Research in Extreme Scale Technologies, Peter implemented a C++ GraphBLAS library that abstracts and accelerates graph algorithms on NVidia GPUs and designed and implemented a breadth-first search (BFS) and a single-source shortest path (SSSP) algorithm using CUDA's Dynamic Parallelism feature. See publications for more details.

Keywords: GPU, Graph Algorithm, CUDA, MPI, BFS, SSSP

Haven Inc.   **Fishers, IN, USA**
Software Engineering Intern   *May 2015 - Aug 2015*
As a member of the software engineering team, Peter implemented new features and maintained existing codebase in a full-stack capacity on a MEAN stack-based iPhone app and created tests with the software engineering team. He also coded the initial stages of a native iOS consumer-oriented application using Swift.

Keywords: iOS, MongoDB, Express, Node.js, Swift

EDUCATION

- MSc, Computer Science, Indiana University, Bloomington IN, USA, 2016
- BA, Computer Science, Mathematical Sciences, Colby College, Waterville ME, USA, 2014

PUBLICATIONS

- **P. Zhang**, M. Zalewski, A. Lumsdaine, S. Misurda, and S. McMillan, GBTL-CUDA: GraphBLAS Algorithms and Primitives for GPUs, Graph Algorithms Building Blocks (GABB) Workshop at IPDPS, 2016
- **P. Zhang**, E. Holk, J. Matty, S. Misurda, M. Zalewski, J. Chu, S. McMillan, and A. Lumsdaine. Dynamic Parallelism for Simple and Efficient GPU Graph Algorithms. In Proceedings of the 5th Workshop on Irregular Applications: Architectures and Algorithms, IA3 '15, pages 11:1–11:4. ACM, 2015.

CONFERENCE PRESENTATIONS

- 2016 Graph Algorithms Building Blocks (GABB) Workshop at IEEE International Parallel & Distributed Processing Symposium (IPDPS), Chicago, USA, Speaker
- 2015 5th Workshop on Irregular Applications: Architectures and Algorithms, IA3 '15, at International Conference for High Performance Computing, Networking, Storage and Analysis (SC '15), Austin, TX, USA, Speaker

OTHER SKILLS

Functional and object-oriented programming concepts
Cloud technologies: AWS (EC2, ECS, EKS, Cloudwatch, Batch, Lambda, ECR, Fargate), Azure, Google Cloud Platform
Data science: Pandas, CUDA, Numpy, Scipy, Matplotlib, Asyncio libraries
Programming languages: Python, TypeScript/JavaScript, Rust, C++, Kotlin, Java, Scheme
Databases: Redis, PostgreSQL, DynamoDB, BigQuery, AWS Redshift
Build systems, CI/CD: TravisCI, CircleCI, Azure Pipelines, CMake, Make
Infrastructure: Docker, Packer, Terraform, Kubernetes, RabbitMQ, ElasticSearch
Other: GraphQL (server/client), Payment provider integration (Adyen, Nets), CRM integration (Contentful), Kanban
Languages: English (Native), Chinese (Native), Finnish (C1), Spanish (B2)