Dan Zheng

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EDUCATION

PURDUE UNIVERSITY
BS in Computer Science
College of Science
December 2018 | W. Lafayette, IN
Cum. GPA: 3.82 | CS GPA: 4.0

Tracks
Machine Intelligence

LINKS

Github:// dan-zheng
LinkedIn:// dan-zheng

SKILLS

PROGRAMMING
Swift • C/C++ • Scala • Python
Coq • Java • Perl • JS

MACHINE LEARNING
TensorFlow • PyTorch • JAX
NLP (text classification, coref, language modeling)
ASR (CTC decoding)

OTHER
LLVM • CMake • Docker
Git • SQL • MongoDB
Vue.js • LaTeX

TALKS

- Probabilistic & Differentiable Programming Summit 2019 (slides)
- Google Developer Days China 2019 (video)
- ICFP 2019: Demystifying Differentiable Programming

COURSEWORK

Software Engineering
Systems Programming
Competitive Programming
Intro to Artificial Intelligence
Compilers: Principles & Practice
Data Mining & Machine Learning
Programming Languages
Deep Learning & Symbolic Reasoning

EXPERIENCE

GOOGLE BRAIN | Software Engineer
Jan 2019 - Present | Mountain View, CA

- Co-author of the Swift differentiable programming project
  - Implemented key features: `Differentiable` protocol derived conformances, derivative registration, differentiation support for generics, mutation, control flow
- Co-author of the Swift for TensorFlow APIs
  - Co-designed core components: `Tensor`, `ShapedArray`, `Layer`, `Optimizer`, `KeyPathIterable`
- Co-authored and implemented SE-0253: Swift Evolution proposal for `func callAsFunction` (callable values of user-defined nominal types)
- Mentored 2 Google Summer of Code students: swiftML
- Co-authored design documents
  - Swift Differentiable Programming Mega-Proposal
  - Swift Differentiable Programming Implementation Overview
  - Dynamic Property Iteration using Key Paths

GOOGLE BRAIN | Software Engineering Intern
Jan 2018 - Aug 2018 | Mountain View, CA

- Founding member on the Swift for TensorFlow project
- Co-authored the core tensor library, language-integrated automatic differentiation, and Python interoperability
- Set up the Swift for TensorFlow open source toolchain build process
- Co-authored and implemented SE-0216: Swift Evolution proposal for user-defined dynamic callable types

THE DLVM PROJECT (DLVM.ORG) | Key Contributor
Summer 2017 – Jan 2018
Research Project: Compiler Infrastructure for Deep Learning Systems

- DLVM:
  - Implemented key general-purpose and domain-specific optimization passes on DLVM's SSA linear algebra IR
  - Set up testing infrastructure using LLVM Integrated Tester and FileCheck
- CoreTensor: a tensor library featuring shaping, storage, indexing, slicing, linear algebra shape transformation, and collection behavior
- NNKit: a tagless-final neural network DSL embedded in Swift focusing on type safety and developer experience

DIGITAL REASONING | NLP/Deep Learning Intern
May 2017 - Aug 2017 | Nashville, TN

- Created Turby, a library providing data augmentation for text
- Built Japanese language models with custom CTC loss for ASR

PUBLICATIONS

LANTERN (ARXIV) | Co-author
Sep 2018 - Present
Research Project: Scala Machine Learning Library

- Contributed to core tensor library: indexing, operations, broadcasting
- Implemented GPU backend (cuBLAS & cuDNN) and evaluated on real-world models