Jakub Arnold

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Location: Prague, Czech Republic

PROFESSIONAL EXPERIENCE

- **Institute of Formal and Applied Linguistics – Prague, Czech Republic** Python, Tensorflow, C++
  Software Engineer *April 2019 – Present*
  - Created a C++ interface for TensorFlow C API to enable 5+ year old aplications to load new models.
  - Implemented bayesian optimization for hyperparameter tuning using Python, providing better than manual expert baseline, and created novel visualizations of higly-dimensional data.

- **Merck Sharp & Dohme Corp. – Prague, Czech Republic** Python (Flask), JavaScript (React)
  Machine Learning Engineer *July 2018 – March 2019*
  - Researched and implemented custom high performance algorithms for solving combinatorial problems in DNA processing, resulting in over a 1000x speedup (from hours to seconds on larger datasets).
  - Made significant improvements in testing production features, including randomized monte-carlo testing.
  - Saved the company hours of weekly work by automating and dockerizing the deployment process to AWS.
  - Fixed complex bugs in a result visualization application written in d3.js and React.
  - Researched the use of differential privacy with deep learning for generating synthetic datasets from highly sensitive data, and deployed a dockerized prototype with Generative Adversarial Networks (GANs).

- **Freelance – Remote** JavaScript (React), Node.js, Ruby on Rails, Haskell, Go, C#
  Full Stack Software Engineer *March 2015 – June 2018*
  - Architected a major refactoring using modern OOP practices in a large scale ad managemenet system handling over $80 million worth of Google AdWords campaigns, resulting in dramatic increase in maintainability, testability and performance
  - Led development of a drug administration system in React, Redux (Redux-Form) and Ruby on Rails.
  - Developed an award winning iOS/Android (Xamarin C#) application for a T-Mobile startup incubator, in just under three months.
  - Architected and created optimized APIs in Ruby on Rails and Node.js for multilingual classified sites used by millions of unique visitors daily (including RTL languages).
  - Built a realtime Node.js backend (using Socket.io) for mobile application to help visually impaired people navigate in a foreign city.

- **sensible.io – Remote** JavaScript (Ember.js), Ruby on Rails, Go, Node.js
  Full Stack Software Engineer *November 2012 – February 2015*
  - Maintained enterprise-level OAuth2 server with complex business logic written in Node.js.
  - Created a real-time single page application for doctor appointments using Ember.js and PubNub.
  - Deployed multiple applications to DigitalOcean & AWS and maintained the production environment.
  - Developed a complex single page application with multi-step form wizards for banner ad management using Ember.js.

- **Mineus s.r.o. – Prague, Czech Republic** Ruby on Rails, JavaScript (Backbone)
  Full Stack Software Engineer *December 2011 – October 2012*
  - Designed JavaScript SVG visualizations for log data in Raphael.js and Backbone.
  - Built an indexing service for gigabytes daily analytical data using ElasticSearch and PostgreSQL.
  - Interviewed 10+ new developers during the hiring process.

PROGRAMMING SKILLS

- **Programming Languages**: JavaScript, Ruby on Rails, Python, C++, Go, Haskell, Bash

- **Frontend**: React, Redux, Ember.js, Rx.js, TypeScript, Webpack, Backbone, Bootstrap, HTML5 (Canvas)

- **Backend**: Node.js, Ruby on Rails, Flask, PostgreSQL, ElasticSearch, SQL, WebSockets, Linux, AWS, Docker, Braintree, Redis

Education

- **Master's Degree in Computer Science**   Charles University – Prague, Czech Republic
    - Machine Learning, Neural Networks, Deep Learning, Evolutionary Algorithms, NLP, Parallel Programming

Large Personal Projects

- **Trackets – Remote**   JavaScript, Ruby on Rails, Node.js, Go
  Co-Founder & Full Stack Software Engineer   *2013 – 2015 (discontinued)*
    - Launched a subscription based JavaScript error tracking service (similar to Sentry or Bugsnag) with paying customers.
    - Designed a highly optimized embeddable JavaScript snippet for capturing stack-traces on client websites using Google Closure Compiler (8kB minified with cross browser support for stack-trace extraction).

- **SCV Rush – Remote**   Ruby on Rails, JavaScript, Node.js
  Co-Founder & Full Stack Software Engineer   *2011 - 2014 (discontinued)*
    - Founded and ran a StarCraft 2 tournament website which eventually grew to 40 person staff for organizing and managing tournaments.
    - Built a complex Ruby on Rails application with custom tournament bracket algorithm, including a frontend bracket renderer, and a single page application in Ember.js
    - Managed community developers and designers who wanted to contribute to the project.
    - Implemented and deployed a live chat application that supported thousands of concurrent users using Node.js and Socket.io.