# Ambareesh (Amby) Balaji

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## Technical Skills

**Languages:**  JavaScript, CSS3, SASS, SVG, HTML5, C++, C, Scala, Rust, Python, OCaml, Haskell
**Tools and Frameworks:**  React, Redux, Vue, Node.js, GraphQL, Unix, MongoDB, AWS, Docker

## Work Experience

**Embedded Systems Developer** │ Waterloop, UWaterloo's Hyperloop Initiative 🌐 *Oct 2017—present*
- Working on a custom implementation of the **C++** STL considering the memory limitations of the **Arduino**
- Implementing a **state management** system for communication among pod subsystems and the station

**Freelance Web Developer** │ CIGI - City of Waterloo, Waterloo, ON 🌐            *Sep 2017—present*
- Built a **2.5D interactive** timeline visualizer from scratch, using only vanilla **JavaScript**, **SVG**, and **SCSS**
- Implemented mouse, touch, and keyboard **gestures**, and **progressive loading** of high resolution images
- Utilized cutting-edge web technologies like **CSS Grid**, with polyfills for supporting older browsers

**Software Developer** │ Rangle.io, Toronto, ON 🌐            *May—Aug 2017*
- Built **React components**, and **REST APIs** and **Mongoose** models for a **Node.js/Koa** backend to track staffing excesses and deficits, saving the management significant amount of **time** and **money** long-term
- Revamped **Redux** reducers and moved computation-heavy logic to the backend, improving performance
- Wrote unit tests using **Mocha/Chai**, **Enzyme**, and **Sinon**, and improved code coverage from 75% to 85%
- Implemented testing branch builds, deployed them on **AWS EC2** in **Docker** containers with **CircleCI** integration, and worked on **OAuth2** implementation on the main server for their authentication
- Improved **Webpack**, **Babel**, and **Docker** configs for more efficient development, testing, and deployment

## Projects

**Jam Buddy** │ React, Redux, WebAudio API, Synaptive.js            *Oct 2017—present*
- Working on an **automatic karaoke** web-app that auto-generates a background track for the user's voice
- Using **autocorrelation** to determine the musical note using the dominant frequency in the user's voice
- Training a **neural network** to guess the musical scale from the musical notes and the rhythym

**Sign Language Translator** 🌐 │ Python2.7, Leap Motion Orion SDK            *Nov 2016*
- Worked on an **American Sign Language** to speech translator using a **Leap Motion** sensor
- Implemented algorithms that interpreted **hand gestures** using **linear algebra** to generate English words
- Helps the hearing and speech impaired **better communicate** with people not aware of ASL
- Won **First Place** and "**Most Innovative Hack**" awards at EC Hacks 2016, Trent University, Peterborough

## Activities

- Marking Teaching Assistant for **MATH 124,** University of Waterloo
- **WEEF** Committee Member, University of Waterloo

## Education

**University of Waterloo** 🌐 │ Bachelor of Software Engineering (BSE) - 2A term   *Sep 2016—Apr 2021*
Cumulative GPA: 3.95/4.0            *(expected)*
- **Dean's Honours List:** Fall 2016, Winter 2017
- Faculty of Mathematics **National Scholarship** ($12000), one of 12 Canada-wide