

# ALEX LEIGHTON

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## EXPERIENCE

### Amazon Register

2013 - present

Software Development Engineer II  
[register.amazon.com](http://register.amazon.com) | Seattle, WA

Working on the Amazon Register mobile application team. The Amazon Register mobile app enables customers to process credit card payments on their mobile device.

- **Backend Development** [*Java, DynamoDB, S3, SQS*]
  - One of the leaders of development on the tier-1 transaction processing system, involving coordination between the synchronous service, the high-availability data store, and the asynchronous processing system.
  - Owned development of the changes to Amazon's interface with Chase Paymentech in order to enable processing of EMV transactions.
  - Integrated the transaction processing system with many internal services, for the purposes of balance tracking, accounting, fraud detection/prevention, and etc.
- **Mobile Development** [*Objective C, iOS, Java, Android*]
  - Completely reworked interface with native card reader drivers for both iOS and Android apps.
  - Maintained the HTML5/Backbone/Handlebars single-page hybrid app.

### On Time Systems Inc.

2010 - 2013

Software Engineer  
[imagreendriver.com](http://imagreendriver.com) | Eugene, OR

Worked on the *Green Driver* and *Enlighten* mobile apps as a member of the Green Driver team. The *Green Driver* mobile app was a GPS navigation application using traffic light prediction technology to find the route to the customer's destination that avoided red lights. The *Enlighten* app provided the same traffic light prediction technology without the map and navigation features.

- **Mobile Development** [*Objective C, iOS, Java, Android, JNI, C*]
  - Led the development of the Green Driver Android client.
  - Led the development of the Enlighten Android client.
  - Maintained existing Green Driver iOS client.
- **Monitoring & Reporting** [*C++, Javascript, Postgresql*]
  - Sole developer of a monitoring, reporting, and notification framework used in all of the backend servers.
  - Created a web-based dashboard for real time viewing of monitored data.
  - Notification that sends emails and text messages on alert status.

- **Backend Development** [C++, Python, C]

- Developed a query parser for the internal geocoder, achieving an improvement in the runtime by a factor of 10 over the existing parser.
- Created an efficient binary protocol for exchanging atlas data between tile server and clients. Reduced message size by a factor of 4.
- Maintained Green Driver backend servers in Python and C++.

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## EDUCATION

Master of Science, Computer and Information Science

2009 - 2011

University of Oregon, Eugene OR

Bachelor of Arts, Computer Science

2005 - 2009

Willamette University, Salem OR

Graduated *cum laude*

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## SKILLS

Languages

**Experienced:** Java, Python, OCaml

**Competent:** C++, Javascript, C, Haskell, Objective C, PHP

Technologies

- Android SDK / NDK
- iOS SDK
- Java Native Interface
- Amazon DynamoDB, S3, SQS
- pthreads, sockets, poll/epoll
- jQuery, backbone.js, handlebars.js
- HTML / CSS
- Twisted event framework
- SQLAlchemy

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## PUBLICATIONS

Green Driver: AI in a Microcosm

2011

Coauthor, paper presented at the AAAI Conference, August 2011 [[aaai.org](http://aaai.org)]