**K. DORUK KARINCA**

(424) 394-8146 — dorukkarinca@gmail.com — Los Angeles, CA — [github/dorukkarinca](https://github.com/dorukkarinca) — [linkedin/dorukkarinca](https://linkedin.com/in/dorukkarinca)

**EDUCATION**

**University of California, Los Angeles (UCLA)**

*M.S. in Computer Science* 3.85/4.0 GPA, Expected Jun 2021

*B.S. in Computer Science and Engineering 3.5/4.0 GPA,* Aug 2019

**Courses**: Computer Vision, Statistical ML, Gender Bias in NLP, Statistical Bioinformatics, [Machine] Learnability Theory, Search Algorithms, Networks, Statistics, Discrete Math

**Honors**: Dean’s Honors

**RESEARCH EXPERIENCE**

**UCLA, Computer Science, StarAI Lab** Los Angeles, CA

*Undergraduate Researcher and Developer*April 2019 – Jun 2019

* Utilized Probabilistic Sentential Decision Diagram Framework (which represents joint probability distributions over binary variables as circuits) to extract features from gene sequences.

**UCLA, Electrical and Computer Engineering, Ozcan Research Group** Los Angeles, CA

**Howard Hughes Medical Institute (HHMI),** *Undergraduate Researcher and Developer*Dec 2015 – March 2019

* Sickle cell detection using a smartphone
  + Developed **MATLAB**-based **machine learning** image-analysis software (RUSBoost ML algorithm), detecting sickle cell anemia from portable microscope images, raising detection accuracy from 75% to 90%.
  + Built software to reduce sickle cell disease screening costs in Sub-Saharan African countries that have >150,000 deaths/year.
  + Received *Best Project Award at HHMI Ozcan Research Group* showcase*.*
* Water turbidity detection using a smartphone
  + Helped to develop a **Python** script for data postprocessing to detect ocean water turbidity.
  + Developed Windows Phone app with job control that allows a user to take photos of images, sends them to a MATLAB server and displays the turbidity detected from the image.
* Coliform detection using an xy-translational stage
  + Built low-cost **Raspberry Pi** system with two stepper motors that move an attached platform on an xy plane.
  + Wrote Python script that “scans” the entire platform and takes photos at predetermined intervals to expedite the analysis of a large batch of test tubes and to eliminate the need of biology experiment supervision.
* Portable phosphorus detector using a smartphone
  + Wrote MATLAB script that compares treated blood samples for phosphorus presence by measuring their average brightness from a photo and gives information on phosphorus content based on a calibration curve.
  + Developed Windows Phone app to upload photos for server-side analysis of results on MATLAB.

**PUBLICATIONS AND PRESENTATIONS**

* Peer-reviewed articles
  + Snow, Jonathan W., Hatice Ceylan Koydemir, Doruk Kerim Karinca, Kyle Liangus, Derek Tseng, and Aydogan Ozcan. "Rapid imaging, detection, and quantification of Nosema ceranae spores in honey bees using mobile phone-based fluorescence microscopy*."*Lab on a Chip, January 28, 2019, <https://pubs.rsc.org/en/content/articlelanding/2019/lc/c8lc01342j>
  + S. Rajpal, H. Ceylan Koydemir, D. Karinca, Z. Gorocs, A. Ozcan, “Water turbidity detection using a smartphone” (in preparation)
  + D. Karinca, K. Liang, A. Ray, A. Ozcan, “Proof-of-concept blood diagnostics using mobile devices” (in preparation)
* Conference proceedings
  + J. Snow, Columbia Univ., H. Ceylan Koydemir, D. Tseng, D. Karinca, K. Liang, A. Ozcan, “Bee parasite detection using a smartphone”, SPIE Photonics West Conference, February 2, 2019, The Moscone Center, San Francisco, CA, USA
  + S. Rajpal, H. Koydemir, Z. Gorocs, D. Karinca, A. Ozcan, "Turbidity measurement using a smartphone," BMES (Biomedical Engineering Society) Annual Meeting, October 17–20, 2018, Atlanta, Georgia, USA
  + H. Ceylan Koydemir, E. Van Dyne, D. Tseng, S. Feng, D. Karinca, K. Liang, R. Nadkarni, R. Varma, and A. Ozcan, "Sickle cell detection using a smartphone based transmission microscope", 17th Annual UC Systemwide Bioengineering Symposium, June 13-15, 2016, University of California, San Francisco, CA, USA
* Oral presentations
  + D. Karinca, K. Liang, J. Snow, H. Ceylan Koydemir, D. Tseng, A. Ozcan, “Bee parasite detection using a smartphone based microscope”, May 22, 2018, Undergraduate Research Week, UCLA
  + D. Karinca, K. Liang, J. Snow, H. Ceylan Koydemir, D. Tseng, A. Ozcan, “Bee parasite detection using a smartphone based microscope”, May 14, 2018, HHMI Day, UCLA
  + D. Karinca, K. Liang, R. Nadkarni, R. Varma, H. Ceylan Koydemir, E. Van Dyne, D. Tseng, S.W. Feng, A. Ozcan, “Automated detection and classification of sickle cells from whole blood using a smartphone based transmission microscope and machine learning”, May 24, 2017, Undergraduate Research Week, UCLA
  + D. Karinca, K. Liang, H. Ceylan Koydemir, D. Tseng, S. W.Feng, A. Ozcan, “A smartphone based microscope to detect sickle cell disease”, May 24, 2017, HHMI Day, UCLA

**WORK EXPERIENCE**

**LendingClub** San Francisco, CA

*Software Engineering Intern*Jun 2019 – Aug 2019

* Implemented full-stack click tracker using **React, Node, SQL, Spring Boot** to collect users’ loan preferences.
* Captured 800+ clicks/week on partner loans using tracker, gathering key business insights on user behavior.
* Revised UI state management for loan offers page to preserve user’s progress even after a browser refresh.

**Veritas** Santa Clara, CA and Mountain View, CA

*Software Engineering Intern*Jun 2018 – Sep 2018 and Jun 2017 – Sep 2017

* Developed authentication client & server compatible with Veritas products using **REST**, **RSA crypt**, **PL/SQL**.
* Developed full-stack app using **Spring Boot** and **JavaFX** to auto-renew users’ expiring Veritas licenses.
* Wrote **Java** app to analyze PDF invoices heuristically using Tesseract and LingPipe **NLP,** extracting payment date, tax amount etc. saving time by eliminating manual data entry, servicing to 86% of Fortune 500 firms**.**
* Improved navigation experience for **Angular**-based web app for customers like Intel, T-Mobile, and BofA.
* Organized events as a lead intern and wrote articles on Veritas’ on-campus life with interns.

**Guitarist and composer** Sep 2011 – Present

* Released solo EP on Spotify: <https://open.spotify.com/artist/1Wxt1wEoNTDiR5cvQbXD2Y>

**PROJECTS**

**Featuretools (Github:** [**github.com/FeatureLabs/featuretools**](http://bit.ly/tensorflowcc)**)** Aug 2019

* Contributed to **Python** open-source project that automates the machine learning feature engineering process.
* Added support for classifying features that contain US states and regions; wrote unit tests.

**TensorFlow Column Comparator (Github:** [**bit.ly/tensorflowcc**](http://bit.ly/tensorflowcc)**)** Sep 2018

* Built TensorFlow automator to select best features with normalization and hyperparameter optimization.
* Made console tool in **Python** to allow data scientists to easily obtain relationships in previously unseen data.
* Calculated and displayed user’s training progress and error rates of correlation for finished trainings.

**Uplift (Android app)**: Nov 2016 and Apr 2015

* Built backend of social network application based on location-based content ranking using **Node.js**.
* Won Top 10 Prize at LA Hacks, UCLA’s hackathon, among 200 teams.
* Won Facebook Award: Best Product among 10 teams, as decided by a jury of Facebook engineers.

**History Slides (web application:** [**historyslides.com**](http://historyslides.com/)**):** May 2014 – Sep 2018

* Implemented slideshow capability, using native **JavaScript,** foramap-based app for interactive history teaching to fill the gap of visualization of history in traditional Turkish education system.
* Built interactive world map in which major WWI events are chronologically highlighted on historical boundaries.

**TECHNICAL SKILLS**

* **Proficient:** Python (Numpy), Java (Spring Boot, JavaFX), Node.js, MATLAB, React Native, C, C++, Bash.
* **Basic Knowledge:** TensorFlow, Oracle PL/SQL, C#, Verilog