Maksim Levental

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Education

University of Chicago — Chicago, IL

- *Doctorate in Computer Science* — *Fall 2020 – Expected Fall 2022*
  Topic: Distributed HPC

University of Florida — Gainesville, FL

- *Master of Science in Computer Science* — *Fall 2013 – Fall 2015*
  Topic: Databases for Buried Hazard Signature Metadata — *GPA: 3.72*

Florida State University — Tallahassee, FL

- *Bachelor of Science in Mathematics/Physics* — *Fall 2007 – Fall 2010*
  Topic: Low-energy Hadronic Reactions — *GPA: 3.73*

Academic Experience

- **Super Resolution for Automated Target Recognition** — FON: W909MY-14-R-D010

  Super resolution is the process of producing high-resolution images from low-resolution images while preserving ground truth about the subject matter of the images and potentially inferring more such truth. We look towards super resolving images collected using longwave infrared cameras in an effort to improve target detection and classification. We investigate transfer learning using existing Deep Recurrent CNNs and propose a novel Reinforcement Learning system as well.

- **A Deep Neural Network Model for Hazard Classification** — 10.1117/12.2535681

  Buried hazard detection learning algorithms do not transfer effectively to diverse regions interrogated with differing sensors. We implement a novel training paradigm using *region-based stratified cross-validation* that improves learning induction across disparate data sets. We test this training paradigm on a novel Deep Neural Network architecture. Furthermore, we discuss the relationship between loss and evaluation metrics.

Industry Experience

- **Precision Silver LLC** — Gainesville, FL
  Senior Software Engineer — *June 2018 – August 2019*
  - **Embedded**: Built (from zero) soft-realtime RPi based system for collecting RGB and multi-spectral images at precise time/distance steps. Module was deployed on the DJI M600 platform in concert with Swift Piksi GPS module. This project involved serial communication with the Piksi and using PWM to actuate cameras and receive remote control signals.
  - **Mobile**: Built (from zero) iOS application for planning and executing DJI M600 flights. This included porting and extending crop row/column swath calculations and integrating the DJI SDK. Completed many test and calibration flights. App is currently used by ∼10 industry plant science research groups.
  - **ML**: Implemented k-nearest neighbors model to improve generation of vegetation mask for purposes of pixel level image segmentation.
  - **Backend**: Merged plant metrics database schema with customer database schema (normalizing relations), Implemented "phone home" system for remote upload stations.
  - **Frontend**: Built several React components for user interface web app (displaying plot metrics). Refactored, extended, and created several QGIS plugins for use in vegetation mask creation and consequent image segmentation.
  - **DevOps**: Implemented on premises CI (Concourse) that built iOS app, tested for regressions, and deployed backend code to Lambdas.
- **Preview Technology LLC** — Gainesville, FL
  CTO — *July 2017 – June 2018*
  - **Business**: Sales (inbound and outbound), account management (one large multinational and several small regional), fundraising (pitched to angel investors and raised $220k).
  - **Backend**: Built/owned entire backend using Django, Docker, Postgres, Elasticsearch, Redis. The backend included user management, authentication, analytics, content management, and fiducial marker generation.

- **Frontend**: Built/owned mobile app and desktop dashboard using VueJS. The mobile app included social authentication, augmented reality components, QR code recognition, profile management.
- **DevOps**: Built/owned all of deploy on AWS (RDS, EC2, EB, Lambda).

Older projects/experience available upon request

Skills

- **Programming Languages:**
  - Expert: Python
  - Intermediate: Go, MATLAB, JavaScript, C#, LaTeX, Rust
- **Technologies:** PyTorch, TorchScript, AWS, CloudFormation, Vue, React, Django, PostgreSQL, QGIS, Docker, Git
- **Human Languages:** English (native), Russian (native), Spanish (conversational)

References

Available upon request