Akshay Peshave

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Computer Science doctoral candidate aspiring to be a subject matter expert in end-to-end knowledge-based systems, from automated knowledge acquisition to reasoning and representation.

Research Interests

Knowledge Representation, Information Retrieval, Education Technology, Financial Technology

Technical Skills

- **Development Technologies:** Python, Node JS, R, C++
- **Data Technologies:** Mongo DB, MySQL, Neo4j, Redis, Apache Solr, RDF

Professional & Research Experience

- **Teller (Finterest Inc.)** **East Bay, CA**
  Co-Founder *Aug 2017–Feb 2019*

  Envisioned the research and innovation to power an inclusive personal finance ecosystem to cater to the gig economy. Areas of contribution included risk modeling, recommender systems, banking integration and next-gen financial wellness features.

- **PayPal Inc.** **San Jose, CA**
  Technical Intern - PhD (Risk Detection - Fraud Modeling) *Jun 2017–Aug 2017*

  Implemented and evaluated a continuous learning neural network strategy for fraud detection. The motivation and goals were to :
  - Reduce fraud detection model performance deterioration.
  - Preempt baseline model failure to automatically re-initialize the continuous learning baseline.

  This helped understand opportunities for automated model generation and updates.

  Technical Intern - PhD (Checkout Product Analytics) *Jun 2016–Aug 2016*
  - Pseudo-control cohort modeling pipeline for A/B testing of feature release ramp-ups.
  - Interactive visual tool to report faceted, revenue-correlated KPIs.
  - Concept proposal for a sequence analysis based cohort modeling platform for user, product and experience analytics.

  Technical Intern - PhD (Merchant Checkout) *May 2015–Aug 2015*
  - Proposed a proof-of-concept peer trust metric based on peer-to-peer transactions representative of organic lending.
  - Applied transaction clustering to mine lending events based on temporal proximity and amount similarity; community detection to extract peer lending communities.

University of Maryland, Baltimore County **Baltimore, MD**
Research Assistant (IBM Accelerated Cognitive Cyber-security Lab) *Jan 2017–Present*

- Developing a cognitive model for accelerated reasoning in the cyber-security domain by leveraging ontological mappings and machine learning techniques.

Research Assistant (eBiquity Lab) *Aug 2016–Dec 2016*

- Applying topic modeling and graph-theoretic approaches to mine slots for knowledge representation.

Research Assistant (Interactive Visual Computing Laboratory) *Jan 2016–May 2016*

- Design and implement an interactive clinical cohort analysis visual platform based on diagnoses trajectories.
- Explore similarity analysis and clustering methods for diagnoses trajectories.

Research Assistant (Cognition, Robotics & Learning Lab) *Jan 2013–May 2015*

- Explored novel methods for click-stream mining and work-flow learning from activity logs of GLOBE, a geo-scientific research collaboration website.
- Successfully completed a masters thesis on applying community detection to learn abstract hierarchical workflows from activity logs. A journal paper is under work.

eBay Inc. **San Jose, CA**
Technical Intern - PhD (Paypal - Merchant Checkout) *Jun 2014–Aug 2014*

- Implemented representativeness analysis for mining user activity patterns, by applying feature identification and clustering, to triage failures and user-abandoned transactions.

Graduate Student Intern (Paypal - Merchant Checkout) *Jun 2013–Aug 2013*

- Built a production-stack issue triaging prototype built on a Python Django, Apache Solr, MongoDB stack.
- Scalable, automated log scraping implemented using Parallel Python on a virtual cluster.
- On-demand scraping and custom reporting for transaction flows.

Infosys Ltd. **Bangalore, India**
Systems Engineer (Knowledge Mgmt. Unit) *Feb 2010–Jul 2012*

- As a member of the technology innovation team, I part of the test-driven development efforts for content management and retrieval systems based on Web 2.0 patterns.
- Key projects included:
  - A holistic learning portal which was a mashup of knowledge sources and learning systems for learners in the organization. Deliverables included a SharePoint based competency development dashboard and a Lucene based federated search solution.
  - Apache Solr based search for an archive of knowledge emails. Deliverables included search service (WCF web service), UI development and non-functional testing of the search service stack.

Tata Consultancy Services Ltd. **Pune, India**
Project Intern *Aug 2008–Apr 2009*

- Developed a GUI in Python for a client owned System Integration and Configuration Management process.
- Key learning was an understanding of GUI development patterns and System Integration processes and best practices.

Academia Experience

University of Maryland, Baltimore County **Baltimore, MD**
Graduate Teaching Assistant (Computer Science & Electrical Engineering)
Programming for Comp. Sci. Majors I (CMSC 201) *Aug 2015–Dec 2015*
Advanced Database Systems (CMSC 661) *Jan 2013–May 2013*
Principles of Programming Languages (CMSC 331) *Aug 2012–Dec 2012*

- **Trinity College of Engineering & Research** — **Pune, India**
  Lecturer (Computer Engineering) — *Jun 2009–Jan 2010*
  Courses conducted include
  - Fundamentals of Programming Languages
  - Programming & Problem Solving

Education

Academics

- **University of Maryland, Baltimore County (UMBC)** — **Maryland**
  Ph.D. - Computer Science, Current GPA: 3.970 — *Jun 2014–Ongoing*
  Masters of Science - Computer Science — *Aug 2012–May 2014*
- **University of Pune** — **Maharashtra, India**
  Bachelors of Engineering - Computer Engineering, First Class — *Aug 2005–Jun 2009*

Certifications

- **IEEE Computer Society**
  Professional Software Engineering Process Master Certification, (License # 0007801) — *Jul 2015–Jul 2018*
- **Johns Hopkins University (Coursera)**
  R Programming, (License # YPAZQVNTXQ) — *Sep 2014*

Bibliography

Research

- **Extending Signature-based Intrusion Detection Systems With Bayesian Abductive Reasoning**
  Ganesan A., et.al. *ACM Dynamic and Novel Advances in Machine Learning and Intelligent Cyber Security (DYNAMICS) Workshop (2018) https://arxiv.org/abs/1903.12101*
- **Thematic Hierarchies for Knowledge Discovery in Text**
  Peshave A., Oates T. *U.S. Semantic Technologies Symposium (Mar 2018)*
- **Baltimore Housing Prices Disparity for Comparable Neighborhoods**
  Peshave A., et.al. *Data for Policy (Sep 2017) | http://doi.org/10.5281/zenodo.884488*
- **Learning Hierarchical Workflows Using Community Detection**
  Peshave A. *Masters Thesis | Adviser - Dr. Tim Oates (Jun 2014) | http://goo.gl/qg51yx*

Patents

- **Trust Score Determination Using Peer-to-Peer Interactions** — **PayPal Inc.**
  Patent Granted | US20170195436A1 — *Nov 2018*
- **Trust Score Investigation** — **PayPal Inc.**
  Patent Granted | US10200394B2 — *Feb 2019*

Societies and Activities

- Chair (2014-15), Vice-Chair (2013-14) UMBC ACM Students' Chapter
- Member of International Students Advisory Board (ISAB), UMBC, 2012-15
- Cultural and Campus Social Responsibility student coordinator, Sinhgad Academy of Engineering, 2007-08