Akshit Arora

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Education

- **University of Colorado Boulder** — Colorado, USA
  Master of Science in Computer Science — *Aug 2017 – Dec 2018*
  Coursework: Neural Networks and Deep Learning, Design and Analysis of Algorithms

- **Thapar University, Patiala** — Punjab, India
  Bachelor of Engineering in Computer Engineering; GPA: 8.44/10 — *Aug 2013 – May 2017*
  Coursework: Data Mining and Warehousing, Databases, Software Engineering, Object Oriented Programming

Experience

- **University of Colorado Boulder** — Colorado, USA
  Teaching Assistant at the Department of Computer Science — *Aug 2017 - Present*
  - **The Art of Computational Thinking (CSCI 1200)**: Responsible for conducting lab sessions, holding office hours, interview-based grading, solving doubts and prepare assignments for the course.

- **Indian Institute of Technology (IIT), Mandi** — H.P., India
  Research Intern at the Applied Cognitive Science Laboratory — *Jun 2015 - Jul 2017*
  - **Interactive Landslide Simulator (ILS)**: Designed and engineered a novel interactive simulation model on landslide risks and used it to implement a web-based microworld. **Attained 16% improvement in effective landslide risk communication**. ILS also helps in making policy decisions for people living in landslide prone areas.
  - **Cognitive Modeling**: Brainstormed a cognitive model that takes into account the financial risks of people living in landslide prone areas and predicts landslides due to natural and man-made factors. Analyzed it by running **monte-carlo simulations** on the model using decision tools such as @RISK and Evolver.
  - **Augmented Reality (AR)**: Researched various libraries for making AR based applications like Google Tango, Microsoft Holo-lens, Wikitude SDK, ARToolkit and KudanAR. Engineered a tool for **training and evaluation of military personnel in different cognitive loads**. Designed and implemented AR simulations similar to search-and-rescue missions and first-person-shooter games using Vuforia and Unity 3D.
  - **NeuLog API**: Integrated sensors like, measure blood pressure, galvanic skin response, heart rate and respiration for running psychological tests using C# scripts.

Publications

- **Interactive Landslide Simulator: A Tool for Landslide Risk Assessment and Communication**: Chaturvedi P, **Arora A**, Dutt V. Advances in Applied Digital Human Modeling and Simulation (Springer Books). 481: 231-243. Jul 2016. **Book Chapter**. Using: **Palisade Decision Tools, PHP, MySQL**. Publication Link: **goo.gl/VXGZ3J**
- **Learning in an Interactive Simulation Tool against Landslide Risks: The Role of Amount and Availability of Experiential Feedback**: Chaturvedi P, **Arora A**, Dutt V. Natural Hazards and Earth System Sciences. 10.5194/nhess-2017-297. Sep 2017. **Journal Paper**. Publication Link: **goo.gl/P2wFCu**
- **Interactive landslide simulator: A tool for landslide risk and damage assessment.** : Chaturvedi P, **Arora A** and Dutt V. Applied Human Factors and Ergonomics Conference, Orlando, Florida, USA. Jul 2016. **Oral Presentation**.

Projects

- **Deep Knowledge Tracing (2017)**: Implemented recurrent neural network (LSTM) using TensorFlow to model the learner's knowledge state by predicting the probability that a learner would correctly answer a problem in our set given a sequence of prior responses. Collaborated with Woot Math, a start-up based in Boulder, CO. **Achieved a 9.1% better prediction per question with LSTM and 37.6% better prediction per skill label with LSTM than the baseline prediction**. Pre-processed raw student interactions data (about 23 GB) from **MongoDB**, encoded the data to feed the LSTM, trained & tuned the model on **Red-Hat based supercomputer**.

Programming Skills

Python, R, Java, C++
TensorFlow, Pandas, Scikit-Learn, Keras
MySQL, MongoDB, PHP, Bootstrap, D3.js, Django
Unity 3D, Vuforia, Android Studio

Awards

- **Awarded Travel Fellowship**: For presenting 3 research papers at the 7th International Conference on Applied Human Factors and Ergonomics, Orlando, FL, USA on behalf of Applied Cognitive Science Lab (by IIT Mandi and Thapar University).