Akshit Arora

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Education

- **University of Colorado Boulder** — Colorado, USA
  Master of Science in Computer Science. GPA: 3.85 / 4 — *Aug 2017 – Dec 2018 (Exp.)*
  Courses: Neural Networks & Deep Learning, Design & Analysis of Algorithms, Machine Learning, Big Data Architecture, Mind Reading Machines
- **Thapar University (TU), Patiala** — Punjab, India
  Bachelor of Engineering in Computer Engineering. GPA: 8.44 / 10 — *Aug 2013 – May 2017*
  Courses: Data warehouse & Data Mining, Object Oriented Programming, Operating Systems, Data Structures

Experience

- **University of Colorado Boulder** — Colorado, USA
  Teaching Assistant at the Department of Computer Science — *Aug 2017 - Present*
  - Spring 2018: CSCI 2270 - **Data Structures** under Prof. Rhonda Hoenigman
  - Fall 2017: CSCI 1200 - **The Art of Computational Thinking** under Prof. Ioana Fleming
- **Indian Institute of Technology (IIT) Mandi** — H.P., India
  Research Scholar at the Applied Cognitive Science Laboratory — *Jun 2015 - Jul 2017*
  - Undertook a research internship in Cognitive Science & Augmented Reality (AR) under Prof. Varun Dutt
  - Designed a novel mathematical model to predict landslides, followed by implementation of an interactive simulation model used for what-if analysis, making policies and creating awareness about landslides
  - Developed AR based android applications for training and evaluation of military personnel under different cognitive loads such as, head-mounted & hand-held displays, and projection & optical AR

Projects

- **Deep Knowledge Tracing on Fractions** — Aug 2017 - Present
  - Implemented recurrent neural network (LSTM) using TensorFlow on raw student interactions data of about 23 GB to model the learner's knowledge state given a sequence of prior responses; Collaborated with Woot Math
  - Achieved a 65.5% area under curve (AUC) per question with LSTM and 99.4% AUC per skill label with LSTM
- **AR Scavenger Hunt** — Jan 2017 - Jul 2017
  - Implemented scavenger hunt and first person shooter simulations with GPS and accelerometer values using Vuforia and Unity 3D, followed by interfacing of sensors such as, blood pressure, to the AR experiments using C# scripts
  - Researched various AR libraries such as, Google Tango, Microsoft Holo-Lens, KudanAR, ARtoolkit, Wikitude SDK and initiated implementation of first-person-shooter based AR simulations
- **Interactive Landslide Simulator** — Jun 2015 - Jul 2016
  - Developed a cognitive model that takes into account the financial risks of people living in landslide prone areas and predicts landslides due to natural and artificial factors
  - Deployed the model as a web-based micro-world, ran experiments using Prolific Academic and attained 16% improvement in effective landslide risk communication

Technical Skills

Languages: Python, R, Java, C++, Lua, C#, bash

Web: PHP, HTML5, CSS3, Django, JSON, XML

Tools: Unity 3D, Android Studio, Weka

Databases: MySQL, MongoDB, Cassandra

Libraries: TensorFlow, Pandas, Scikit-Learn, Keras, Vuforia, KudanAR, Docker

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 TU)

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**. 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**