VISHESH KUMAR

Second Year, Graduate Student,
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EXPERIENCE

Graduate Student Researcher at UW-Madison | Fall, 2015 – Now

Guides: Matthew Berland; Constance Steinkuehler

Participating in qualitative and quantitative analyses of play and participation data. Projects include analyzing data from educational curricula surrounding in-house developed games; to data from interactive museum exhibits. Working in the Complex Play Lab and Games Learning Society, doing a variety of projects!

Summer Intern at Iridescent Learning | Summer, 2014

Guide: Kevin Miklasz

Engaged in play data analysis of the Ethers Games, aiming to build a model to assess the game players for Iridescent's target traits like Persistence, Creativity, Curiosity, Engineering Design Process and Scientific interest.

Visiting Student Researcher at the Embodied Design Research Laboratory, University of California, Berkeley | Summer, 2013

Guides: Dor Abrahamson and Kiera Chase

Apprenticed into design-based research of students' mathematical cognition and instruction, and collaborated on a project (by building a digital prototype, and contributing to design decisions) while gaining research experience in cognitive domain analysis, and qualitative analyses of data.

Founder, Qount It | 2011-12

Aimed at "Making Math Marvelous", Qount It was a venture, wherein we organized math contests, talks, and web content in blogs, to engage school students and spread excitement about Math.

PUBLICATIONS

- Tissenbaum, M., Berland, M., **Kumar, V.** (2016). **Modeling Visitor Behavior in a Game-Based Engineering Museum Exhibit with Hidden Markov Models.** Proceedings of the 9th International **Conference on Educational Data Mining.**

- **Kumar, V.,** Tissenbaum, M., Berland, M. (2016). **Trade to the top: Teaching economics and complex systems through the Lead Caravan multi-player game.** Proceedings of the 12th International Conference on **Games + Learning + Society Conference.**

- Binzak, J.V., Anderson, C.G., **Kumar, V.,** Jordan-Douglass, A., & Berland, M. (2016, August). **Comparing Gameplay Across Formal and Informal Contexts.** Proceedings of **1st International Joint Conference of DiGRA and FDG.** Extended Abstract presented at Digital Games Research Association and the Foundations of Digital Games Conferences, Dundee, Scotland. Tampere, Finland: Digital Games Research Association.

EDUCATION

Pursuing a Master's Degree in **Curriculum & Instruction** (focus in **Digital Media**), enrolled in the Ph.D program

Bachelor's in Design (Major in Design, with a Minor in Mathematics), Indian Institute of Technology Guwahati (**2011–'15**)

INTERESTS

- Educational Technology
- Learning Sciences
- Game Design & Development
- Human Computer Interaction

TECHNICAL SKILLS

- Python, C/C++, Java, R
- Javascript, HTML/CSS
- Unity, Android, Kinect
- Processing, Arduino
- Google Sketch-up
- Adobe Suite (Photoshop & Illustrator)

COURSES OF STUDY

Graduate School:

- Introduction to Learning Sciences
- Computational Literacy in Education
- Educational Data Mining
- Entrepreneurship in Digital Media
- Constructionism
- Game Design I
- Sociocultural Theories of Learning

PUBLICATIONS (CONTD.)

– Anderson, C. G., Binzak, J. V., Dalsen, J., Saucerman, J., Jordan-Douglass, A., **Kumar, V.**, Turker, A., Scaico, P., Scaico, A., Berland, M., Squire, K., & Steinkuehler, C. (2016). **Situating Deep Multimodal Data on Game-Based STEM Learning**. Proceedings from ICLS '16: 12th **International Conference of the Learning Sciences**. Republic of Singapore

– **Kumar, V.**, Dargan, T., Dwivedi, U., Vijay, P. (2015). **Note Code – A Tangible Music Programming Puzzle Tool.** In Proceedings of the 9th International **Conference on Tangible, Embedded and Embodied Interaction** (TEI) 2015.

– Abrahamson, D., Chase, K., **Kumar, V.**, & Jain, R. (2014). **Leveling transparency via situated, intermediary learning objectives**. In Proceedings of "Learning and Becoming in Practice," the 11th **International Conference of the Learning Sciences** (ICLS) 2014 (Vol. 1, pp. 23-30). Boulder, CO: International Society of the Learning Sciences.

(EARLIER) PROJECTS

Built **Note Code** | January, 2014 – April, 2014

A tangible music programming puzzle game made to enable playful music composition while helping build computational thinking skills due to the system's affordances. Prototyped with an physical Arduino setup, and a Processing-based GUI, in a team of 4.

Prototyped **Colorave** | September 14-15, 2013

Conceptualized a system to explore the correlations between light's waveform & visible properties like color. Prototyped a tangible system, which enabled manipulation of the wave's properties (wavelength & amplitude), and seeing the resultant color.

Designed and built **Giant Steps for Algebra** | Summer, 2013

Under Professor Dor Abrahamson, UC, Berkeley
Collaborated on a design-based research project investigating the emergence of conceptual understanding from task-oriented problem solving using virtual objects.

Conceptualized and prototyped **Sur-real** | January 21-25, 2013

Created a system to accept gestural inputs on arbitrary surfaces, using acoustic inputs, for high mobility and flexibility. At the MIT-DI workshop, Bangalore, 2013, in a team of 5, made and demoed as an Arduino+Processing prototype.

Co-designed **Braille Key** | September – November, 2012

This project aims for the creation of a novel and effective text input system for the blind, based entirely on Braille alphabets for low cost touch-screen mobile devices, with minimum touch points and small screen size. Prototyped and tested as an Android mobile application.

COURSES OF STUDY

Undergraduate:

– Product Modeling & Simulation
– Product Detailing
– Graphic Design
– Design Methods
– Interaction Design
– Physical Computing
– Tangible User Interfaces
– Instructional Design and Multimedia
– New Media Studies
– Language and Communication
– Language, Culture & Cognition
– Discrete Mathematics
– Data Structures & Algorithms
– Formal Languages & Automata Theory
– Probability & Statistics
– Scientific Methods of Computation