Albany State University

Faculty Capabilities and Interests

Name: Wanjun Hu

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Discipline: Math & Computer Science
Subdiscipline(s):

Areas of Research Interests: General Topology, Educational Technology, Computer Graphics

Skills: Math skills: expert on data analysis, statistics, and educational technology
Computer Science: expert on programming languages, website development,
signal processing, and computer graphics

Research Summary *(current, performed in the past 5 year; 300 words or less)*

Resolvable space is a topological space that has enough disjoint dense subsets. The research on resolvable spaces has raised quite an interest recently. It is a research area in pure mathematics. Co-authored with W.W.Comfort, we proved that every n-resolvable Tychonoff space satisfying a minor condition admits exactly n-resolvable expansions.

Mobile devices have become dominating the communication among people. The usage of mobile devices in teaching and learning is a very promising area. In a collaboration with two authors from two other universities, we design a system called Repository to host course components for lower computer science class, which provide animations, online interaction to each course component. In another research with Dr. Chan and Dr. Zheng, we did a research on using iPad in teaching college algebra. We did not find significant improvement.

In an on-going research, I worked on voice conversion, an area of Digital Signal Processing. A human voice can be sampled as a sequence of real numbers. After a Fourier transformation, we obtained the frequency information. From the frequency domain, we are able to obtain the so-called spectral envelope. The spectral envelope can easily identify a voice. Various models can be used to

study the spectral envelope and used to convert one voice to another.

Keywords ***(5 maximum)*** General topology, educational technology, high school math improvement, computer graphics, signal processing.