Ritesh Sharma

https://www.linkedin.com/in/riteshsharmacs

Education

M.S. in Computer Science (CGPA 3.45/4) March, 2017
Computer Graphics and Visualization
Thesis: Interactive Design and Transition Point Analysis of 3D Linear Symmetric Tensor Fields
Advisor: Dr. Eugene Zhang
Oregon State University, Corvallis

B. Tech. in Computer Science and Engineering (CGPA 8.45/10) August, 2010
West Bengal University of Technology, India

Professional Experience

Senior Graphics Programmer, *Passur Aerospace Inc., United States* May 17 - Present

- Software Development
  - Working on rendering and visualization of flight tracking system.

Intern (Mathematica Algorithm R&D), *Wolfram Research Inc., United States* Apr 16 - Aug 16

- Software Development
  - Developed software package to connect Wolfram's Mathematica with Pixar's Renderman.
  - Software package testing for geometry primitives, plot functions and functionalities used for 3D Printing.

Research Exprience

Graduate Research Assistant, *Oregon State University* Mar, 14 - Dec, 16

- 3D Symmetric Tensor Field Analysis and Visualization
  - Improved topology extraction techniques using A-Patches and by solving analytical solutions.

Research Assistant, *Indian Institute of Technology Bombay, India* Oct, 10 - Dec, 13

- Virtual Laboratory for Urban Transportation System Planning Course
  - Developed an accurate, reliable and autodidactic web-based virtual laboratory

Publications

- Zhang, Y., **Sharma, R.**, Zhang, E., Maximum Number of transition points in a 3D Linear Symmetric Tensor Fields, TopoInVis 2017, Tokyo, Japan, Feb 27th-28th, 2017
- Jenny, B., Stephen, D. M., Muehlenhaus, I., Marston, B. E., **Sharma, R.**, Zhang, E., Jenny, H, Force-directed layout of origin-destination flow maps, International Journal of Geographic Information Science (IJGIS), 2017
- Jenny, B., Stephen, D. M., Muehlenhaus, I., Marston, B. E., **Sharma, R.**, Zhang, E., Jenny, H, Design Principles for Origin-destination Flow Maps, Cartography and Geographic Information Science (CaGIS), 2016
- Nelson, V., **Sharma, R.**, Zhang, E., Schmittner, A., Jenny, B., 3D visualization of global ocean circulation, AGU Fall Meeting, San Fransisco, CA, Dec 18, 2015
- Stephen, D., Jenny, B.,**Sharma, R.**, Zhang, E., Muehlenhaus, I. (2015). Automatic Flow map creation using a force-directed layout. North American Cartographic Information Society Annual Meeting, Minneapolis, MN Oct. 15, 2015
- Zhang, E., Palacios, J., Yeh, H., Wang, W., Zhang, Y., Laramee, B., **Sharma, R.**, Schultz, T., Feature Surfaces in Symmetric Tensor Fields Based on Eigenvalue Manifold, IEEE TVCG, Issue 99, Oct 1, 2015
- **Sharma, R.**, Jadhav, S., Tripathy, D., Sardar, V. H., Patil, G. R., Virtual Laboratory: An alternative approach to Urban Transportation Systems Planning Lab, Transportation Research Board, 93rd Annual Meeting, Washington, D.C, USA, 2014

Technical Skills

- **Programming and Scripting Languages**: C(Proficient), C++(Proficient), GLSL, PHP, HTML, CSS, Javascript, JQuery, Wolfram Language
- **Frameworks and Platforms**: wxWidgets, QT, OpenGL, OpenMP, OpenCL, GitHub and Stash
- **Software**: Microsoft Visual Studio, Matlab, Eclipse, Netbeans, Renderman, Mathematica, Wolfram Workbench, Rhinoceros 3D, UnReal Engine 4.0

Graduate Course Highlights

Courses Grades

- CS 551: Computer Graphics A
- CS 552: Computer Animation A
- CS 554: Geometric Modeling A-
- CS 557: Computer Graphics Shaders A
- CS 575: Intro to Parallel Computing A

Academic Projects

- 3D visualization of global ocean circulation
  - Developed a visualization tool for showcasing mixing of ocean water at different density level and its effect on the distribution of tracers such as carbon isotopes.
- Isosurface Extraction using A-Patches
  - Achieved a better isosurface defined by a polynomial of any degree using A-Patch.
- Smoke Simulation
  - Implemented particle based method to simulate smoke.
- Pool Game Animation
  - Implemented Pool game simulation.
- Flow Visualization
  - Implemented Line Integral Convolution to visualize vector field using streamlines.

Teaching Exprience

Graduate Teaching Assistant, *Oregon State University* Jan, 14 - March, 17

- CS 325: Analysis of Algorithm
- CS 340: Introduction to Databases
- CS 344: Operating Systems I
- CS 480: Translators

Co-Curricular

- Poster Presentation on 3D Symmetric Tensor Field Visualization at Engineering Research Expo held at Portland Art Museum, Portland, Oregon, Mar 1, 2016.
- Mentored a senior undergraduate student under REU (Research Experience for Undergraduate) Program during Summer 2015, funded by NSF.
- Poster Presentation on Mode Surface Extraction Using A-Patches at Engineering Research Expo held at Oregon Convention Center, Portland, Oregon, Mar 4, 2015.