

Jasmeet Singh

Experience

ANSLab, UBC | Graduate Research Assistant
Sep-2017 - Present | Vancouver, BC

- Created a surface mesh generator capable of producing quad-dominant, anisotropic mesh automatically from a triangulation of a surface.
- The generated mesh unlike before, can directly be fed into a 3-D mesh generator, refiner and fluid flow solvers. Moreover, it makes the solver robust and increases its accuracy by 30%. Primary coding language: C/C++ (85%), Python(15%)

CGAL, Google Summer of Code | Student Developer
May 2019 - July 2019 | Vancouver, BC

- In this Google Summer of Code(GSoC) project, I develop basic viewers for various data structures in CGAL (Computational Geometry Algorithms Library). These basic viewers are basically global functions that allow 3D visualization of CGAL data-structures. They are very useful in order to visualize the result of an algorithm and can help to debug some code.
- Interactive viewers were developed for data structures - Voronoi Diagram, Nef Polyhedra, Periodic Triangulation and Arrangement 2D.

Indian Institute of Science | Research Assistant
Jan 2016 - July 2017 | Vancouver, BC

- Developed an algorithm to convert spatial flame fronts into connected graphs.
- Performed network analysis on the constructed graphs to infer flame front characteristics.
- This study produced state of the art highly enriched graphical representation of flame front and improved flame prediction by 20%.

Other Projects

Dynamic Kelvinlets

Digital Humans Course Project | Sep 2019 - Dec 2019

- Implemented a procedure to automatically add secondary motion to objects given skeletal animation keyframes for a model using linear blend skinning.
- The algorithm solves elastodynamics equations to compute material response towards elastodynamic forces.
- The implementation runs in about real time (55.6 FPS) and requires no information about the geometry of the object being animated.

Publications

- Singh J., Olliver Gooch, Carl F. "Advancing Layer Surface Mesh Generation." AIAA Scitech 2020 Forum. 2020.
- Singh, Jasmeet, et al. "Network structure of turbulent premixed flames." Chaos: An Interdisciplinary Journal of Nonlinear Science 27.4 (2017): 043107.

Education

- MASc, Mechanical Engg.,
University of British Columbia
Sept 2017 - Present
- B.Tech, Mechanical Engg., IIT
BHU, Varanasi
July 2011 - May 2015

Contact

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Skills

- Professional experience with C++, Python, MATLAB
- Experience in Numerical Simulations
- Experience in Algorithm Development for Geometry Discretization and Visualization
- Passion for disruptive methodologies in Numerical Simulation and Graphics problems

Awards

- 2019 Best Student Paper Award - AIAA SciTech 2020
- 2018 Continuing Merit Award - UBC
- 2017 Department Entrance Scholarship - UBC
- 2015 Merit-Cum Means Scholarship | 4 years of Bachelor's - IIT, Varanasi
- 2013 Unilever Future Leaders Internship Fellowship - Pan IIT
- 2011 99.3 percentile in IIT - Joint Entrance Exam
- 2011 99.7 percentile in All India Engineering Entrance Examination

Leadership

- 2018- VP, Communications -
- 2019 [Interdisciplinary Graduate Student Network \(iGSN\)](#)
- 2014- Co-Founder and Core Member
- 2015 - Career Guidance Forum, IIT, Varanasi