Avirup Mandal

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ACADEMICS

Examination	Institute	Specialization	Year	CPI/%
MTech + PhD	IIT Bombay	Communication Engineering	2016-Present	9.43
BE	Jadavpur University	Electronics & Telecommunication	2015	9.03
Higher secondary	WBCHSE	Science	2011	90.0
Secondary	WBBSE	-	2009	89.6

AREAS OF INTERESTS

Physics-based animation, Haptics, Computer Graphics, Machine Learning

SCHOLASTIC ACHIEVEMENTS

- Secured an **All India Rank** of **113** among **1,52,318** candidates in **GATE-2016** with **ECE** specialization
- Secured a **State Rank** of **94** in **West Bengal Joint Entrance Examination - 2011**

PUBLICATIONS & PATENTS

- **In Submission**
  - **A. Mandal**, P. Chaudhuri, and S. Chaudhuri, ***Remeshing-Free Graph-Based Finite Element Method for Ductile and Brittle Fracture***, arxiv 2021, https://arxiv.org/abs/2103.14870
  - **A. Mandal**, P. Chaudhuri, and S. Chaudhuri, ***Multi-Resolution, Multi-Timescale, Physics-Based Virtual Sculpting With Haptic Feedback***
- **Conference publication**
  - **A. Mandal**, D. Sardar, and S. Chaudhuri, ***Haptic Rendering of Solid Object Submerged in Flowing Fluid with Environment Dependent Texture***, EuroHaptics 2018, pp. 390-403
  - **A. Mandal***, K. Ayush*, and P. Chaudhuri, ***Non-linear Monte Carlo Ray Tracing for Visualizing Warped Spacetime***, VISIGRAPP (IVAPP) 2021, pp. 76-87 (shortlisted for **best paper award**)
  - K. Lahiri, **A. Mandal**, S. Sinha, and A. Mukherjee, ***Wireless Personal Health ECG Monitoring Application***, **WPMC**, 2014, pp. 618-623
- **Patent**
  T. Kundu, K. Lahiri, **A. Mandal**, A. Mukherjee, M.K. Naskar, and S. Sinha, 2016, ***Generic Data Compression for Heart Diagnosis***, **U.S. 9477701 B1**, filed November 30, 2015 and issued October 25, 2016

MAJOR RESEARCH PROJECTS

- **Title: Remeshing-Free Graph-based Fracture Simulation** [May'20 - Ongoing]
  Guide: *Prof. Parag Chaudhuri* & *Prof. Subhasis Chaudhuri*, IIT Bombay
  - Proposed a novel method for **3D fracture simulation** based on **Finite Element Method**
  - Our method is **remeshing-free**, **graph-based** and computationally **faster** than existing techniques
- **Title: Virtual Sculpting Brushes with Haptic Feedback** [May'19 - Ongoing]
  Guide: *Prof. Parag Chaudhuri* & *Prof. Subhasis Chaudhuri*, IIT Bombay
  - Developed a framework containing multiple **virtual sculpting tools** for mesh manipulation
  - Rendered proper **haptic feedback** for each of the mesh editing operations e.g. deforming, cutting etc
- **Title: Haptic Rendering of Textured Solid Objects immersed in Fluid** [May'17 - May'18]
  Guide: *Prof. Subhasis Chaudhuri*, IIT Bombay
  - Simulated water-flow using particle-based **Lagrangian approach** solution of **Navier-Stokes equation**
  - Proper **haptic feedback force** for water and submerged solid is rendered through haptic device

SOFTWARE PROFICIENCY

- **Languages:** C/C++, Java, Python
- **Simulation Softwares:** Houdini, MATLAB, LaTeX, Visual Studio, Eclipse, MeshLab
- **APIs Used:** OpenGL, CUDA, Bullet Physics

EXTRACURRICULARS

- **Interests:** Avid reader of novels and popular science books, Watching TV series, Movies