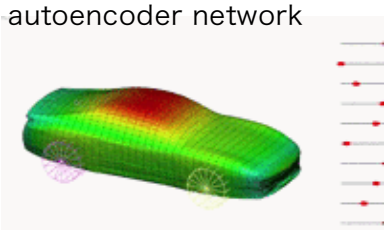
Name：Nobuyuki Umetani	Research Interests：Computer Graphics, Physics Simulation

Interactive Graphics & Engineering Group

http://www.nobuyuki-umetani.com/

Our group is working on computational fabrication, physics-based animation, digital contents creation. Computational prototyping machine such as 3D printers are widely available but it is still difficult for the novice users to design functional objects. Using physics simulation and machine learning techniques, we aim to achieve an interactive interface to facilitate the user's creative design. We welcome students how have interest in computer graphics or computational physics to develop new technologies together!

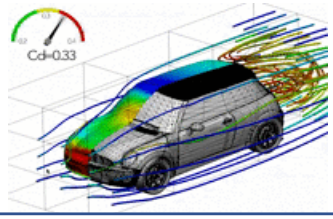
Machine learning on 3D geometry using autoencoder network



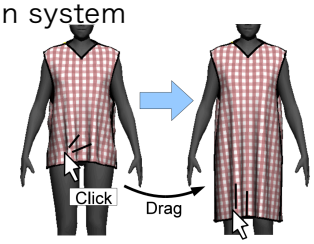
Design of wind-instruments using resonance simulation

Robust simulation of flexible rods

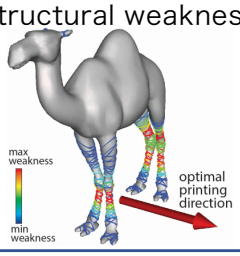
Machine learning aerodynamics



Interactive clothing patter design system



Detection of structural weakness



Code of conduct:

Pursuit your own interest

- We encourage each student to set up his/her own research subject through extensive literature survey. This is an essential skill to become an independent researcher.

Research communication skill

- We practice scientific writing and presentation a lot through paper submission and practice talk. Your awesome research worth nothing if the audience cannot understand it.

Applied math and programming

- Techniques in computer graphics can solve many practical problems. We put emphasis on math and programing skills to acquire these techniques and apply them for new problems.

Our group encourage international collaboration, joint collaboration with industry, and cross-disciplinary research. There are many opportunities in Japan as the graphics and manufacturing industries a strong (e.g., game and car). Highly motivated and skilled students are always welcome.