

HAAG Weekly Report Week 1 & 2

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Time-Log

- What did you do this week?
 - Registered for CS 8903 course
 - Read Abstract and Introduction of research paper by Dr. Hirose on proposed point set registration method using Gaussian mixture Model and Statistical Shape Model.
 - Researched some of the background topics regarding point set registration to better understand the paper
 - Attended meeting with 3D Modelling team and comp. advisors to discuss next steps.
 - Discussed Project Proposal Steps with Teammates and action items.
- What are you going to do next week
 - Clone Repository and setup environment to test Dr. Hirose's method.
 - Finish Reading paper by Dr. Hirose and Dr. Gatti
 - Attend first meeting with Dr. Porto.
- Blockers, things you want to flag, problems, etc.
 - The Research problem is still a bit too abstract and will probably take a few weeks of research and brainstorming to get a better idea of what direction we will be taking. We have also not had any meetings with Dr. Porto yet so we expect to gain a better understanding of the context for this research project in that meeting.

Abstracts

Hirose, Osamu. "Dependent landmark drift: robust point set registration with a Gaussian mixture model and a statistical shape model." Kanazawa University, 2018.

<https://arxiv.org/pdf/1711.06588>

So far, the paper introduces point set registration—the task of aligning sets of points that represent an object's shape and distinguishes between rigid and non-rigid (allowing bending/stretching) transformations. The authors suggest how prior knowledge of an object's geometry, whether through kinematic models (for articulated shapes) or statistical shape models (for general shapes) can significantly improve registration. Finally, they focus on the problem of registering a new shape to a pre-trained model, with the application being 3D surface reconstruction.

What did you do and prove it

I missed the registration deadline and was only added to the course in the second week of classes through the office of the registrar. Throughout this past week, I took some time to catchup on the research paper by Dr Hirose. I also met with our project's computational advisors and the rest of the team to discuss the next steps and agreed to start with testing the algorithm in Dr. Hirose's paper.

Links to papers read:

- <https://arxiv.org/pdf/1711.06588>