Research Experiences in Computational Science, Engineering, and Mathematics (RECSEM) REU Program
www.jics.utk.edu/recsem-reu

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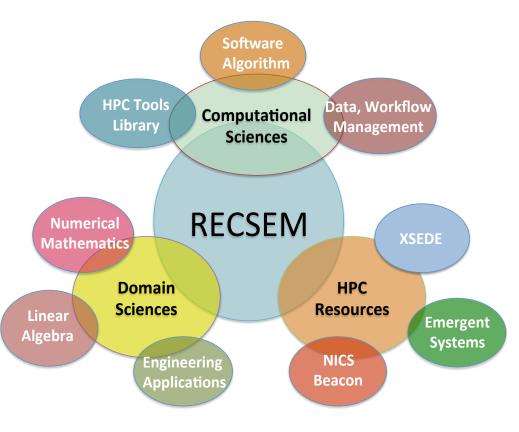**Co-PI : Stan Tomov**
2017-2019

RECSEM Overview

Direct a group of undergraduate students to explore the emergent interdisciplinary computational science models and techniques proven to work in a number of *compute and data intensive applications* using the computing resources provided by the Extreme Science and Engineering Discovery Environment (XSEDE) organization.

- ✓ Three major scientific domains
- ✓ Beacon, Comet, Bridges, GPU, Desktop
- ✓ 10 US students, 6 universities
- ✓ 8 Hong Kong students, 3 universities
- ✓ 10 weeks program
- ✓ 8 projects, 15 focuses, 8 mentors
- ✓ Midterm presentation (5th week)
- ✓ Open REU poster (7th week)
- ✓ Final presentation (10th week)
- ✓ Final report (10th week)
- ✓ 5 social events

Design of RECSEM Program

The RECSEM goal is to promote the ability of undergraduate students to succeed in a research-oriented program in computational sciences. Hence *RECSEM program seeks to mimic the pace and intensity of graduate-level or industrial-level projects with well-defined deliverable deadlines.*

{Training} → 1.5 week → Lectures, Hands on Exercises, Problems

{Science Study} → 1.5 weeks → Background Studies, Research outline

{Math Formulation} → 1 weeks → Research statement → brief overview

{Algorithmic Testing} →2 weeks → Research summary → presentation

{ HPC Implementation} → 2 weeks → research poster

{Concluding Work} → 1 week → final presentation and report

:: 4 major deliverables in 10 Weeks

Logistical and Social Activities

All of these issues require timely efforts, coordination, patience, and most importantly, a good support team for a smooth program. Housing for students is the most difficult logistical issue to be resolved and must be prepared early. The entire group is encouraged to stay together in the arranged housing to help them to blend together socially. It helps to grow a solid bond among the students by organizing group activities.

Emphasis a group program as well as research efforts.

- ✓ Housing arrangement in early February and finalize it as soon as possible. Arrange to stay together on campus apartment complex.
- ✓ Work environment, offices and lecture space, co-location of work space is good to create synergy in a diverse program.
- ✓ Arrange a local student to serve as the lead of the group, helping the group to resolve some of the logistic issues in town.
- ✓ Local transportation, travel arrangement, pay check issues
- ✓ Social Activities, enrichment talks, tours, interaction with other REU programs
- ✓ Zoo trip, cookout party, FCF trip, football stadium tour, SNS tour, HPC tours.

Student/mentor/project selection

- ✓ **RECSEM relies on recruitment through emails and contacts with collaborative institutes of NICS, particularly regional partner Morehouse College in Atlanta. Many of the applicants are recommended students through the contacts of our collaborators.**

- ✓ **2 letters of reference, official transcript, goal statement, and application form**

- ✓ **Deadline – (mid-Feb!!), extension for 2 weeks for second screening and offer**

- ✓ **Official Acceptance letters signed by students**

- ✓ **Get mentors commitments and start project matching in March. Know travel schedule of mentors and have back up plan, 1 primary, 2 supporting (NICS staff)**

- ✓ **Primary research agenda and project plan for each project before May.**

- ✓ **Kwai Wong spends on average 4+ hours a day answering questions.**

- ✓ **Group meeting on every Monday and Thursday morning**

- ✓ **Surveys and Website update**

Mentorship is an art: good mentors bring success

Participants are selected based on three major factors: the nature of their home colleges, their interests and background, and their letters of intent and references. Students from smaller schools with fewer research opportunities preferred in order to expand the national research community. Rising senior students are preferred. GPA is not a deciding factor. Studetnt commitment and interest are important.

www.jics.utk.edu/recsem-reu
List of posters, lectures, and reports

Movies

Q & A

We Back Pat for Her Unrelenting Will to Educate