TeachingOpenSource.org

Heidi J.C. Ellis - Western New England Univ.
Gregory W. Hislop - Drexel University

TOS - In the Beginning....

- Meeting at OSCON 2008 to discuss the need for education on open source
- Karl Fogel - Producing Open Source Software
- Brian Behlendorf - Founding member of Apache group
  - Karl and Brian established teachingopensource.org domain

TOS - In the Beginning....

- A group of professors, students, representatives companies, and Open Source communities met at FSOSS 2008 for theTOS@FSOSS track
- Seneca College, Canada

TOS - In the Beginning....

- TeachingOpenSource.org established March 2009
- Initial goals:
  - Work on Open Source educational models, support and funding schemes, community relationships, and more
  - Advocate for changes for TeachingOpenSource
- Initially had a wiki, Planet, mailing list, IRC channel, monthly conference call

TOS - Established

- RedHatters and Seneca took on main TOS effort:
  - Chris Tyler (Seneca)
  - David Humphrey (Seneca)
  - Mel Chua (Red Hat) - independent researcher
  - Greg DeKoenigsberg (Red Hat) – retired, formerly Ansible
  - Harish Pillay (Red Hat) – Singapore

TOS - Established

- Main goal: Professors' Open Source Software Experience (POSSE) workshops

- Also grow the community

POSSE V1

- Main goal: Professors' Open Source Software Experience (POSSE) workshops
- Began as an outreach effort by Red Hat,
- Goal: help instructors learn about FOSS
- Week-long immersion in an open source project
  - Supported by open source community members

POSSE V1

- 2009 Raleigh
- 2009 Singapore
- 2010 Doha
- 2010 Worcester MA
  - Karl Wurst, TOS CC member

- 2010 RIT - Steve Jacobs
- 2010 South Africa
- 2011 RIT - Steve again!
- 2014 South Africa

POSSE V2

- **6 weeks online work**
  - **2-3 hours/week**
  - **3 virtual meetings to answer questions**
- **2.5 days**
  - **Open source culture and teaching strategies**
  - **Lots of fun!!**
- **12 POSSEs since 2013**
  - **>175 faculty members**
  - **~150 different institutions**

POSSE V2

- 2013 Phila, PA
- 2014 Phila, PA
- 2014 Raleigh, NC
- 2015 Raleigh, NC
- 2016 Phila, PA
- 2016 Raleigh, NC

- 2017 San Fran, CA
  - Google
- 2017 Bologna, IT
- 2018 Phila, PA
- 2019 NYC, NY
- 2019 Phila, PA
- 2022 Garden City, NY

POSSE V2 Participant

One of the biggest lessons I take away from POSSE is that students can learn from open source software in so many ways beyond contributing code. In particular, open source projects provide a large body of code to read and experiment with.

TOS - Current

- Member project of the Software Freedom Conservancy since 2018
  - Allow for funding outside of govt.
  - Coordinating committee academics and open source folks
- Incorporating Computing for Social Good
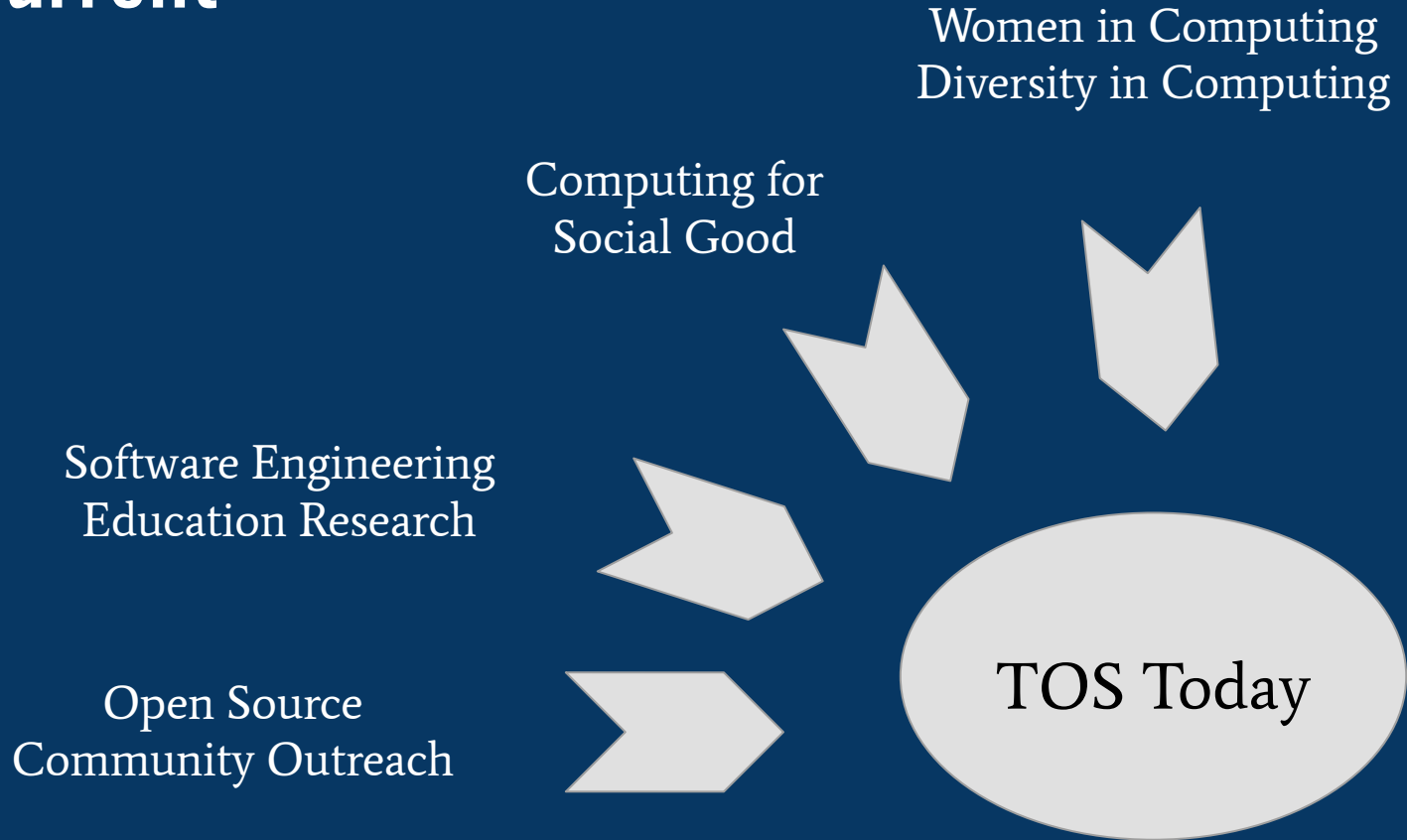
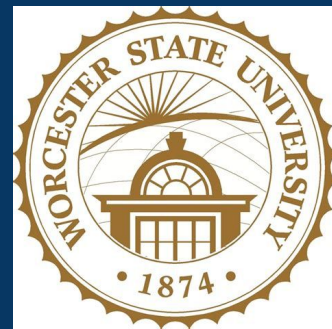# Key Aspects of TOS Today

Member Project

Community

Professional Development

Learning Materials Collection

Web site and Listserv

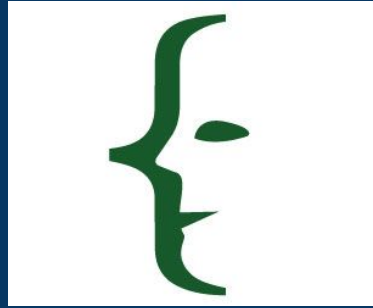# TOS Team

TOS - Current

- Web site is transitioning to Wiki for ease of maintenance
  - Beta: https://mediawiki.teachingopensource.org
- Teaching materials are mostly aimed at academics
- There are materials for a few full courses

HFOSS

- Humanitarian FOSS
  - Free and Open Source Software that improves the human condition in some manner
- The "H" impact and student learning
  - Open source technology and culture
  - Computing for social good
  - Advancing diversity and inclusion in computing

Curriculum and Pedagogy Impact

- Class hours are scarce and change is difficult
- Individual assignments to capstone projects
  - Often as a progression as faculty learn
  - Typically small class sizes (<30)
- Technology and culture in various projects
  - Ushahidi, OpenMRS, GNOME Accessibility
  - LibreFoodPantry, OED, FarmData

TOS is a new topic
and a different way of teaching

TOS / HFOSS Student Impact

- Attitude towards computing
- Knowledge of software engineering
- Development of professional skills
- Demonstrating positive impact of computing
  - Especially humanitarian and community impact and relevance of computing

RESEARCH

TOS / HFOSS Instructor Impact

- Overall instructors felt:
  - Inspired by TOS
  - Able to support flexibility in student learning
  - Increased confidence
  - More able to release control of student learning
  - More open to new technologies
  - Better at taking risks
  - Able to add discovery-based learning

RESEARCH

TOS/HFOSS Instructor Impact

- Shift from "sage on the stage" to "guide on the side"

"...more willing to cede authority and admit that I don't know something"

"What I learned is how far students could go on their own if you mentor them well; when they graduated, they could write code better than the profs by far."

RESEARCH

Instructor Need for Support

- Community
  - "If I was on my own, I probably would have given up"

- Shared learning materials
  - The shared learning materials provided "a lot of material I used in this course."

Instructors as Open Source Advocates

"a big thing is now that when I'm thinking about a course, I ask is there some way that open source would be a good contribution to the course"

Conclusion

- Long term goal: More open-source fluent students
- TOS has to consider both student and instructor
- Significant impact on the instructor
  - A lot of new material to learn and teach
  - An approach to teaching that may be unfamiliar
  - Not easy for many faculty at first
  - Very positive results and instructor experience!

Thank you!