



The Second GENI Research and Educational Experiment Summer Camp (GREE-SC 2015)

University of Connecticut
5/26 - 5/30, 2015

The Organizing Committee

Bing Wang (University of Connecticut)
Kaiqi Xiong (Rochester Institute of Technology)
Jeannie Albrecht (Williams College)
Yong Guan (Iowa State University)
Yin Pan (Rochester Institute of Technology)
Mark Berman (BBN-GPO)
Niky Riga (BBN-GPO)
Vicraj Thomas (BBN-GPO)

ACKNOWLEDGEMENT

We would like to acknowledge the generous support from National Science Foundation (NSF)/BBN, GENI Program Office (GPO), and the School of Engineering of the University of Connecticut.

We would like to thank many people of GPO, in particular, Mark Berman, Sarah Edwards, Chip Elliott, Niky Riga, Vicraj Thomas, and Henry Yeh, who have offered tremendous amount of help in planning and running the summer camp. They have spent a great deal of time helping with recruiting and selecting camp participants, arranging the camp curriculum, reserving GENI resources, providing tutorials, and coaching the labs and projects during the camp. Without their support, this summer camp would not have been possible. We also thank Bryan Lyles from NSF for his warm support to the summer camp.

We would like to thank Bryan Ford (Yale University) and Issac Cohen (UTRC) for their insightful keynote speeches, and thank all instructors from various GENI development teams, Zongming Fei (University of Kentucky), Ryan IZard (Clemson University), Michael Zink (University of Massachusetts, Amherst) for teaching GENI tutorials, labs and projects.

We are grateful to the generous support from UConn School of Engineering. Particularly, we are indebted to Michael Accorsi, Senior Associate Dean, Kazem Kazerounian, Interim Dean, and Mun Choi, former Dean and current Provost of UConn. We would also like to acknowledge the strong support from UConn UITS (University Information Technology Services), in particular Michael Mundrane (CTO), Michael Williams (UIITS Network Infrastructure and Data Center Operations), Jason Pufahl (Chief Information Security Officer), and Mike Lang (UIITS). We also thank Debra Mielczarek, Rebecca Randazzo, Joy Billions and Howard Ellis (the Computer Science & Engineering Department), and several UConn students from the Networking Group including Abdurrahman Arikan, Ruofan Jin, Levon Nazaryan, and Yuexin Mao, for their help with the logistics of the summer camp.

Finally, I am very thankful to the other members of the organizing committee, consisting of Jeannie Albrecht, Mark Berman, Yong Guan, Yin Pan, Niky Riga, Vic Thomas, and Kaiqi Xiong, for their help with organizing the summer camp.

Bing Wang
May 22, 2015

On behalf of the Summer Camp Organizing Committee



Sponsors of the Summer Camp

This project is funded by BBN/NSF.



Welcome Message

We sincerely welcome you to participate in the 2015 GENI Research and Educational Experiment Summer Camp (GREE-SC2015) at the University of Connecticut on May 26 – May 30, 2015.

The Global Environment for Network Innovation (GENI) infrastructure is becoming a mature virtual laboratory for exploring future Internet at-scale. It supports at-scale experimentation on shared and heterogeneous GENI resources among multiple users, permits users to deep programmability throughout the network, and offers collaborative and exploratory environments for innovative research and education. More and more researchers, educators, and students have started or are starting to conduct research and educational experiments on the GENI infrastructure. NSF has sponsored more than 15 GENI experiment projects since September 2010.

This one-week long summer camp will provide you the opportunity to learn and experiment various tools available in the GENI environment through well-structured tutorials, labs and projects including:

- Introduction to GENI resources.
- OS installation and configuration for GENI experiments.
- GENI Portal.
- LabWiki.
- GENI Desktop.
- Openflow.
- GENI systematic experimentation.
- GENI cinema.
- Gaining hands-on lab experience with multiple GENI resources and use them to develop a team-based project.
- Lab sessions with GENI experts who will help you design and begin your experiment.

We truly hope that all of you will find this summer camp to be an interesting, enriching, and informative experience, and you will continue to use GENI in your research and educational projects.

Sincerely,

The 5th GENI Summer Camp Committee:

Bing Wang, UConn

Jeannie Albrecht, Williams College

Kaiqi Xiong and Yin Pan, RIT

Yong Guan, Iowa State University

Mark Berman, Niky Riga and Vic Thomas, BBN

GENI Summer Camp Details:

Location: The summer camp will be held at the University of Connecticut. It will be in Laurel Hall Room 111 on Tuesday-Saturday (5/26-5/30). Laurel Hall is a new classroom building. It is very close to Gampel Pavilion (the building with a round dome) and Student Union.

The camp will run every day from 8AM-5PM, with an hour-lunch break from 12:30-1:30pm. Please note that we will end at noon time on the last day.

Pre-work and Agenda: If you plan to participate in the hands-on tutorials, please finish the pre-work beforehand. You should have received instructions on how to complete them.

Meals: There is a restaurant in the hotel, and multiple restaurants in the downtown close by. The food places on campus are mainly the following (where your dining cards can be used):

Union Street Market (Student Union Food Court): Monday – Friday 7:30am – 2:30pm, Closed Saturday

Co-Op Café: Monday – Friday 8:30am – 4pm, Saturday 10am – 5:30

South Dining Hall: Breakfast 7am – 9:30am, Lunch 11:30am – 12:15pm, Dinner: 4:15pm – 7:15pm

Lodging: Nathan Hale Inn
<http://www.nathanhaleinn.com>

Maps: Please find maps of UConn at <http://maps.uconn.edu>
A PDF version can be found at <http://www.uconn.edu/pdf/wholemap.pdf>



Internet Access: UConn Guest WiFi
<http://wireless.uconn.edu/uconn-guest/>

Group Dinner: We will have a group dinner at Chang's Garden on the second day of the camp (5/27) at 6-8pm. Its website is <http://changsgardenct.com>
Address: 1244 Storrs Rd, Storrs Mansfield, CT 06268
Phone: (860) 487-1688

Pre- and Post-evaluation Surveys: Summer camp participants please fill in pre- and post-evaluation surveys on the first and last day of the camp, respectively.

Pre-evaluation survey is at: <http://www.sogosurvey.com/survey.aspx?k=RQsXPQRsYsPsPsP>

Post-evaluation survey is at: <http://www.sogosurvey.com/survey.aspx?k=RQsXPQRsQPsPsPsP>

Local Transportation: It's around 40-50 minutes' drive from Bradley Airport (BDL) to UConn campus. Information of airport shuttle is at <http://transpo.uconn.edu/#shuttleAirport>

List of Speakers and Participants

Name	University/Company	Status
Fatma Alali	U. of Virginia	Master Student
Mark Berman	BBN/GPO	GENI Project Director
Xu Chen	UMass Lowell	PhD Student
Issac Cohen	URTC	Director, System Dept. /speaker
Sarah Edwards	BBN/GPO	Network Scientist/speaker
Zongminig Fei	University of Kentucky	Faculty/speaker
Bryan Ford	Yale University	Faculty/speaker
Ryan IZard	Clemson University	Ph.D Student/speaker
Wei Kou	University of Connecticut	Ph.D student
Sourabh Kulkarni	Rochester Inst. of Tech.	Master student
Bryan Lyles	NSF	Program Director/speaker (remote)
Venu Kamraju Madhav	Missouri U. of Sci. & Tech.	Master Student
Sheyda Kiani Mehr	U. of Missouri, Kansas City	Ph.D Student
Mehdi Mohammadi	Western Michigan University	Ph.D student
Reynaldo Morillo	University of Connecticut	Master student
Yanyuan Qin	University of Connecticut	Ph.D student
Lingyu Ren	University of Connecticut	Ph.D student
Niky Riga	BBN/GPO	Network Scientist/speaker
Sujoy Saha	Texas A&M University	Master student
Sunae Shin	U. of Missouri, Kansas City	PhD Student
Thiago A. Teixeira	UMass, Amherst	Ph.D Student
Vic Thomas	BBN/GPO	Network Scientist/speaker
Bing Wang	University of Connecticut	Faculty
Cuiyuan Wang	City U. of New York	Ph.D Student
Kaiqi Xiong	RIT	Faculty
Xuguang Yang	Oklahoma State University	Ph.D Student
Min Sang Yoon	Iowa State University	Ph.D Student
Sang Yu	Temple University	Ph.D Student
Yimeng Zhao	Georgia Institute of Tech.	Ph.D Student
Michael Zink	UMass, Amherst	Faculty/speaker

Keynote Speech by Bryan Ford

Dissent: Design and Experimental Lessons from a Clean-Slate Anonymity System

Abstract

Many people have legitimate needs to avoid their online activities being tracked and linked to their real-world identities - from citizens of authoritarian regimes, to everyday victims of domestic abuse or law enforcement officers investigating organized crime. Currently deployed anonymous communication systems are vulnerable to many known attacks such as traffic analysis, intersection attacks, and software exploits. The Dissent project is a clean-slate effort to design anonymity systems offering systematic protection against these attacks, using alternative cryptographic foundations for anonymity - such as verifiable shuffles and dining cryptographers or DC-nets - to achieve formally verifiable and quantifiable security properties. This talk will present a high-level overview of the Dissent project's results so far and ongoing work, and cover lessons learned: both about the design of next-generation anonymity systems, and about evaluating complex experimental systems like Dissent on today's and future testbed infrastructures.

Bryan Ford currently leads the Decentralized/Distributed Systems (DeDiS) research group at Yale University, but will be moving to EPFL in Lausanne, Switzerland in July 2015. Ford's work focuses broadly on building secure systems, touching on many particular topics including secure and certified OS kernels, parallel and distributed computing, privacy-preserving technologies, and Internet architecture. He has received the Jay Lepreau Best Paper Award at OSDI, and multiple grants from NSF, DARPA, and ONR, including the NSF CAREER award. His pedagogical achievements include PIOS, the first OS course framework leading students through development of a working, native multiprocessor OS kernel. Prof. Ford earned his B.S. at the University of Utah and his Ph.D. at MIT, while researching topics including mobile device naming and routing, virtualization, microkernel architectures, and touching on programming languages and formal methods.

Keynote Speech by Issac Cohen

Overview of Activities at United Technologies Research Center: From Building Automation to Autonomous Helicopters

Abstract

United Technologies Research Center (UTRC) is the Corporate Research Center of United Technologies Corporation, industry leader in aerospace propulsion, building infrastructure and services, elevators and escalators, heating and air conditioning, fire and security system. Founded in 1929, UTRC is located in East Hartford, Connecticut, and operates research and development centers in Shanghai, China, and Cork, Ireland. UTRC currently employs approximately 500 people globally. In this presentation I will provide an overview of key technology programs in the Systems department at UTRC and highlight key technical developments over a broad set of applications ranging from building automation, big data, to cyber physical security, embedded intelligence, and autonomous platforms.

Isaac Cohen is Director of the Systems Department at United Technology Research Center (UTRC), and Director of the UTRC Ireland, based in Cork, Ireland. The Systems department core areas of expertise are in controls, dynamical systems, embedded systems, power electronics, and decision support. He is also the Director of UTRC Ireland, which is UTRC hub in Europe. The Systems Department and UTRC Ireland are focused on furthering UTC capabilities in systems engineering through research and development in underlying technical fields, and the application of these methodologies to UTC aerospace and building and industrial systems product portfolio.

Dr. Cohen received his Ph.D. in Applied Mathematics at University of Paris – Dauphine, and was an active participant in the academic field of computer vision for over 15 years. In June 2010, Dr. Cohen joined UTRC from Honeywell Labs in Minneapolis, where he led the research group focusing on video surveillance, biometrics and cyber security. He held academic position at Institut National de Recherche en Informatique et Automatique (INRIA), France, and at the Computer Science Department at University of Southern California.