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The CSS Outreach Program: Providing Community Service

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IEEE

Outline

- CSS Outreach Fund Overview
- Procedures
- Some Representative Activities
- Questions and Discussion

Overview

- The Control Systems Society's (CSS) Outreach Fund provides small (under $15K) grants to CSS members for outreach activities that will benefit CSS and the controls community (in general).

- http://www.ieeecss.org/general/control-systems-society-outreach-fund.

What is considered ”Outreach”?

Any activity that introduces, promotes, or extends control systems principles to a new and/or diverse audience. This includes (but is not limited to):

- Activities with elementary, high school, and university students.
- Activities in the developing world.
- Educational materials for CSS or the field.
- Workshops on controls-related topics.

CSS Outreach Task Force (as of August 2017)

- Daniel E. Rivera, Chair
- Magnus Egerstedt, CSS VP for Finance (ex-officio)
- Francesco Bullo, CSS President-Elect (ex-officio)
- Antonella Ferrera
- Oscar Gonzalez
- Faryar Jabbari

Origins and History

- Proposed by then-CSS president Tariq Samad in 2009.
- First grants made in 2011; 54 grants issued to date.
- Gary Balas served as inaugural chair; Daniel Rivera has served as chair since 2014.
- Allocated budget is determined yearly, but is nominally $100K/year.

Procedures

- Two solicitations done per year (fall and spring).
- Advertising done through the CSS website and social media channels; significant use of the CSS e-letter.
- Highly structured four-page application (which must be requested directly from the chair).
- Communication between the proposer and the chair strongly encouraged prior to proposal submission.

Budget Guidelines

- $15K maximum for a year-long activity
- Student, admin support ok, but no PI support.
- No more than 10% overhead allowed.
- Cost-sharing not required (but highly recommended).

Proposal Evaluation and Approval

- Proposals circulated a few weeks in advance of the evaluation meeting;
- Preliminary scoring and evaluations submitted to the Chair.
- Task Force meeting is held at either the American Control or IEEE Decision and Control Conferences (depending on the solicitation)
- Decisions arrived by consensus, following discussion; most proposals are approved for adjusted amounts.
- Feedback given to proposers often includes recommendations for project success (beyond simply approving funding).

What we look for in proposals

- Clear articulation of how the proposed activity constitutes outreach.
- Student involvement/support.
- Strong evidence of leverage and/or contributed effort (”win-win”).

Proposal Processing

- Following the Task Force recommendation, proposals still require additional approval from the IEEE-TAB VP.
- Contract materials handled and processed by the IEEE Technical Activities Operations group.
- Project reports must be submitted 60 days after activities are completed.

Some Representative Activities

Project Categories

- Activities with elementary, high school, and university students.
- Activities in the developing world.
- Educational materials for CSS or the field.
- Workshops on controls-related topics.

“My Daughter is an Engineer” – California State University, Long Beach

Dr. Bei Lu in her controls laboratory during the 2013 My Daughter is an Engineer weekend at California State University, Long Beach.

National Engineering and Science Academy (2015 and 2017) – Boy Scouts of America, Greensburg, PA

Summer Camp for Video-Game Based Control Learning for Middle School Girls, Clemson University, South Carolina

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STEM Beyond the Borders: An Engineering Enrichment Outreach Program, Technological University of Panama (2017)

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Pre-College Student STEM Activity in Ghana (2013)

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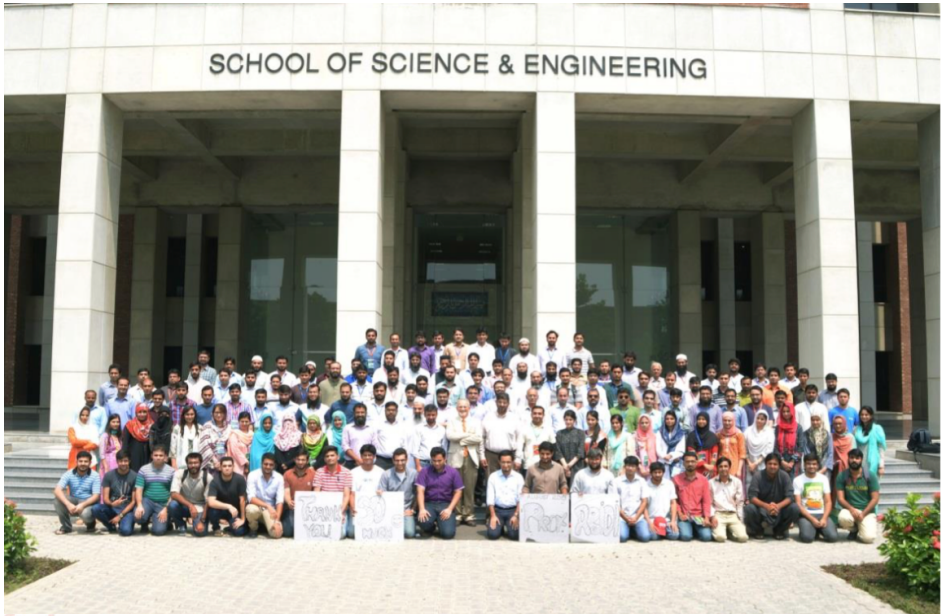
Teaching the Teachers Workshop VI, Lahore University of Management Sciences (LUMS), Pakistan (2015)



First Indian Control Conference, IIT-Madras (2015)

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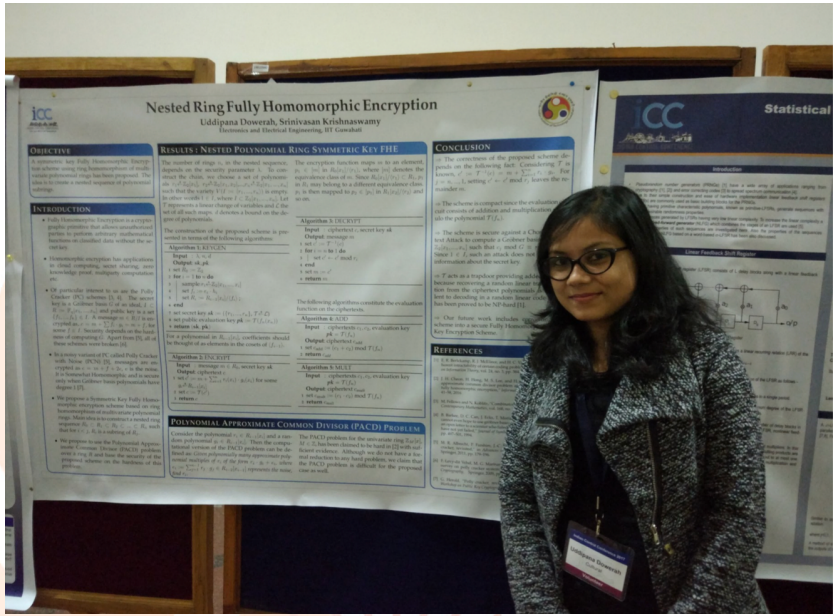
2nd Indian Control Conference, IIT-Hyderabad (2016)

3rd Indian Control Conference, IIT-Guwahati (2017)



Colombian Control Conferences

CSS Colombian chapter

The NOC of the 3rd IEEE CCAC gratefully acknowledge the generous support from the IEEE Control System Society (CSS) and its Outreach Fund to bring the keynote speakers and support outstanding students

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Control Conference Africa 2017

Second Call for Papers

The Control Conference Africa (CCA 2017) is a conference hosted by the South African Council for Automation and Control (SACAC). CCA 2017 promotes the exchange of ideas and developments in control engineering in Africa and builds on previous South African events in control engineering. The CCA 2017 conference specifically addresses control engineers from African countries, African control engineers based abroad who wish to reconnect to their roots, and all control engineers who want to connect with Africa. Both academic and industrial control engineering practitioners have the opportunity to present their work and exchange research ideas with colleagues from across the globe.

Topics include but are not limited to:

- Automotive systems
- Aerospace systems
- Control engineering education
- Energy systems
- Modeling and system identification
- Novel control theory and techniques
- Process control
- Robotic systems

Keynote speakers

David Limebeer
University of Oxford, UK
Optimal Control of a Formula One Car

Babatunde Ogunnaike
University of Delaware, US
Systems Biology of Diseases and the Design of Effective Treatments

Bozenna Pasik-Duncan
University of Kansas, US
Stochastic Adaptive Control - A Field that Spans STEM

Guanrong Chen
City University of Hong Kong, Hong Kong
Pinning Control and Controllability of Complex Dynamical Networks

Thokozani Majozi
University of the Witwatersrand, South Africa
A Hunt in the Forest: Optimization and the Quest for the Global Optimum

Tianyou Chai
Northeastern University, China
Smart optimization control system for energy-intensive equipment

Important Dates

Submission deadline	22 May 2017
Acceptance notification	31 July 2017
Registration opens	31 July 2017
Final papers due	31 August 2017
Early registration ends	1 September 2017
Conference	7-8 December 2017

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2017 Winter School on Cyber-physical Systems, Kalasalingam University, India

IEEE

PhD/Mphil Student Workshop, 2015 Australian Control Conference, Griffith University, Gold Coast, Australia

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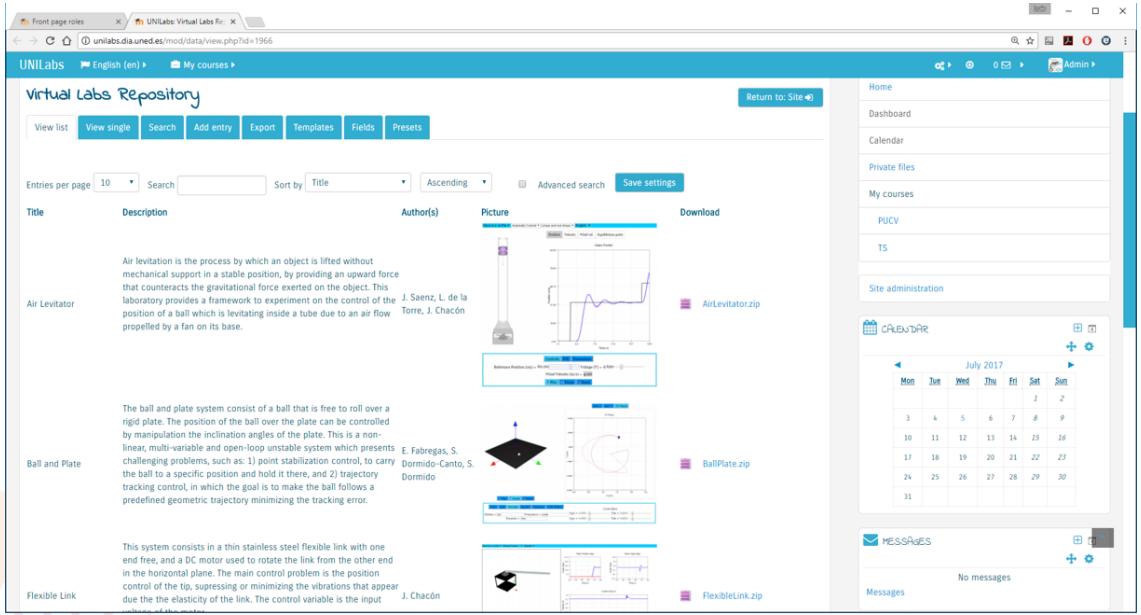
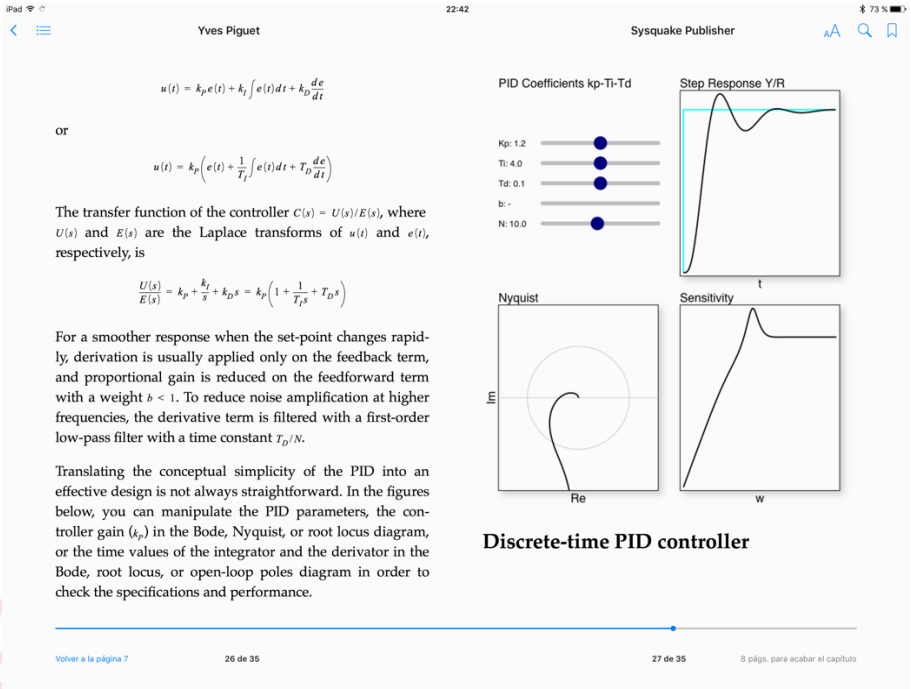
Trans-Atlantic Symposium on ICT Technology and Policy for a Smart Society, University of Minnesota (2017)

UIUC Coordinated Science Laboratory Student Conferences

Virtual and Remote Lab Development, UNED, Madrid, Spain



Interactive Books for Control Education, University of Almería, Spain



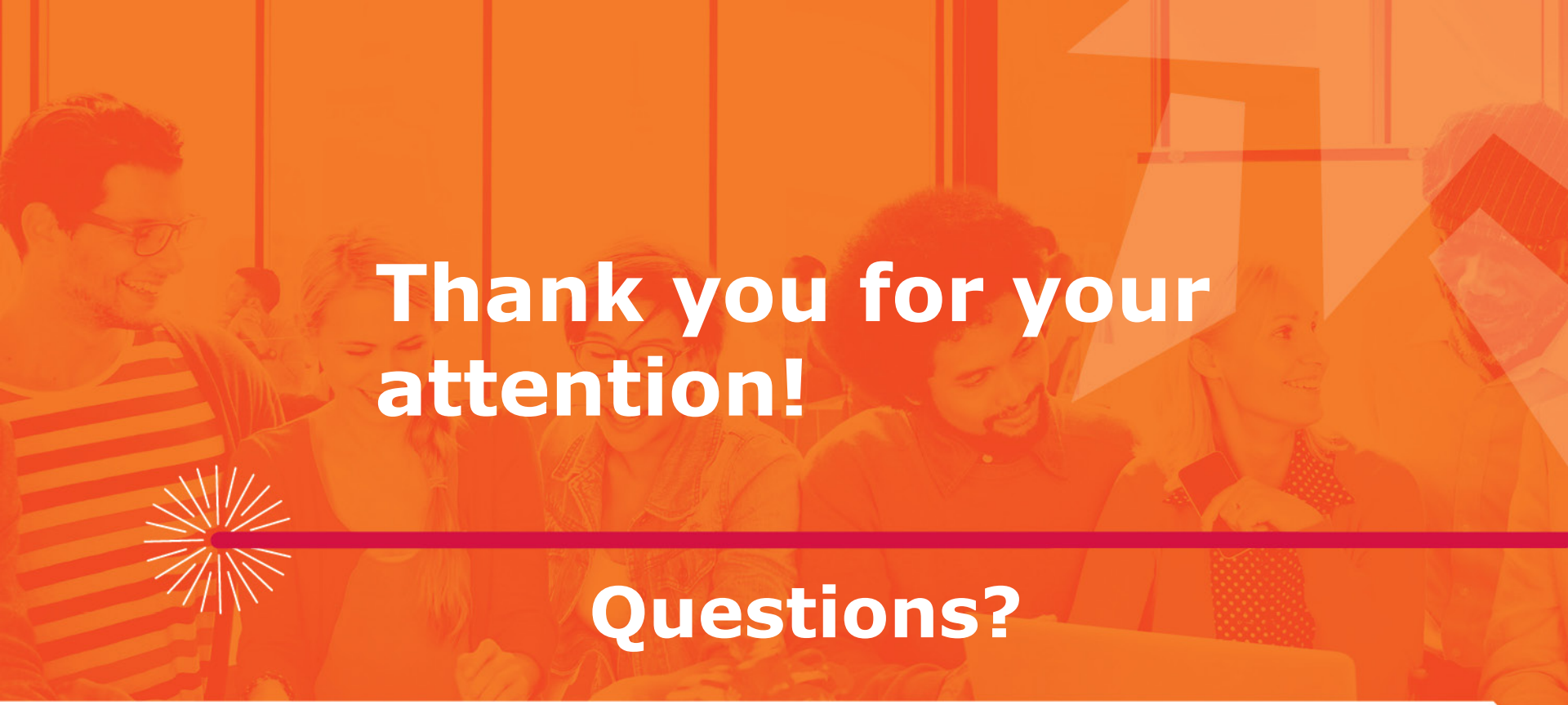
Looking to the future…

- The Outreach Fund is a CSS “best practice” that has been embraced by multiple generations of CSS leadership.
- With seven years of operation and 54 projects funded (thus far), it has reached a significant level of maturity.
- We are interested in leveraging our experience to date, investing in new activities, and continuing to be of service to CSS members and the controls community at large.

For more information

- Additional description and project reports can be accessed from the CSS Outreach Fund website:

  http://www.ieeecss.org/general/control-systems-society-outreach-fund.


Thank you for your attention!
Questions?