



Semiconductor
Research
Corporation

Because the future can't wait, we bring the
best minds together to achieve the
unimaginable

Hardware Security e-Kickoff



February 6, 2023
Virtual

John Oakley, Science Director
LaDonya Dooley, Research Program Coordinator
<https://www.src.org/calendar/e007735/>

Thank you!

On Behalf of the SRC,

Thank You!

- To all the industry members for their sponsorship and mentorship
- To all the Principal Investigators & their Students for the great research effort
- To LaDonya Dooley at SRC for the logistical support
- To all of you for being in-person with us!



e-kickoff Reminders



Everyone will be participating virtually

Presenters should remember to speak clearly and keep within the allotted time.



Timing: 15 min
(10 min talk + 5 min Q/A)

Presentations and Q&A will be live. Please be mindful, so watch the time!!!



Informal Presentations

Please indicate if you want the audience to interrupt with questions. Q/A will occur at the end

Reminder: Invoicing and Deliverables



Regular invoicing

Invoice on regular basis: monthly is preferred

Excess money (calendar year) is considered profit and taxable!

Spending must occur within contract period

Invoicing expected to be at or above 95% invoiced at end of each contract period

Final invoice within 60 days after project ends



Submit deliverables on time: even 1 day is too late!

System will flag delinquencies

Late deliverables will stop invoices being paid and can jeopardize future funding

Contact SRC if there are issues with getting deliverables on time

All submissions will be done in Pillar Science



Pre-publication drafts must be deposited at SRC > 60 days before published

Best practice: deposit draft to SRC website when submitting to journal/conference (also thesis)

Update the draft on the SRC website with final paper after acceptance (select submit a new version)

Acknowledgement of SRC funding must be added to all publications

At minimum, the acknowledgement should read: "This work was supported in part by Semiconductor Research Corporation (SRC)."

Resources that Help Academics Evaluate, Adopt, and Amplify Emerging Member Solutions

Member Resources

- SRC has collected information members provide for the academic community, including education, design, and prototyping
- SRC researchers and students are encouraged to take advantage of these resources in their research and education activities

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Intel

- Intel Open Data Center Diagnostic Project
- Intel Academic Compute Resource Environment (ACE)
- Intel Academic Program for oneAPI

Analog Devices

- Active Learning Program
- ADALM-SR1 Hardware
- ADALM-SR1 Switching Regulator Active Learning Module

ARM

ARM Academic Access
ARM Education

- ARM University Program Education Kits
- ARM Education Online Courses
- ARM Education Textbooks and Reference Books

Texas Instruments

Specific tutorial and curriculum for universities include:

- Texas Instruments University Program
- TI Robotics System Learning Kit
- TI Power Management Lab Kit
- TI Experimental Power Electronics Reference and Curriculum
- TI Precision Labs

IBM

- IBM tutorial and curriculum for universities
- IBM Skills Academy
- IBM + Coursera
- IBM PhD Fellowship Program
- IBM Quantum Computing - student opportunities
- IBM AI Hardware

NXP

- Rapid IoT Prototyping Kit

Siemens

- EDA Academic Products

Qualcomm

- University Relations Program



A Siemens Business



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Recruiter Guide
SRC Timeline

ACADEMIA
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Career Opportunities
Participating Universities
Education Alliance



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<https://www.src.org/program/grc/guide/researcher/guidelines/>

Reminder: Send News Items to SRC

- Send noteworthy events and announcements that you and your team are involved in to SRC
- Send this information on a monthly basis. We use what we can in our SRC newsletter and monthly emails to the Advisory Board and liaisons
 - Best Paper Awards (who, award, title of piece, where, when and photos of students/faculty)
 - Papers, posters presentations, and/or conference talks
 - Professional Recognition Awards: IEEE, teaching awards, etc.
 - Professional activities such as workshops, tutorials, and invited talks
- All submissions must have a web link (URL) to the award, paper, etc.
 - If you have your own website that contains information pertaining to your research, share the link with SRC as well



More Than
17,000
subscribers!!



SRC Student Platform on LinkedIn

- What is the **SRC Research Scholars Program**?
 - SRC provides undergrads, graduate students, and postdoctoral researchers with a unique education consisting of traditional course work, cutting-edge research, and direct interaction with the semiconductor industry
 - These Research Scholars work on industry-relevant research with SRC-funded faculty who are recognized experts in their fields
 - Through our extensive community of academics and industry personnel, we nurture the evaluation of the talent pipeline for our industry and beyond
 - Our alumni have become industry leaders and renowned faculty researchers, creating a virtuous cycle where mojo begets mojo

SRC encourages all undergrads, graduate students, and postdoctoral researchers to join this program!!!

<https://www.src.org/student-center/handbook/linkedin/>

Join
Now!

Get LinkedIn with SRC

SRC uses a special LinkedIn Affiliate page for the SRC Research Scholars Program. Undergrad, graduate students, and postdoctoral researchers participating on SRC research add their SRC Research Scholars experience to their LinkedIn profile. This allows Scholars a way to professionally showcase their talent and experience. It also simplifies how recruiters, engineers, and even other Scholars can find SRC Research Scholars, using either the LinkedIn Search* or LinkedIn Recruiter*.

SRC Research Scholars
Program*



By being part of our community, Research Scholars will have a unique opportunity to get to know professionals with careers in the semiconductor industry or government, top researchers in their fields, and other students with similar interests.



Spring Virtual Career Connections



- Happening on March 2, 2023, at 5 – 7 pm ET via GatherTown
 - <https://sway.office.com/JGufkLysvEoN5Y64>
- SRC is hosting its Annual Spring CareerConnections, a virtual recruiting networking event for **ALL SRC Research Scholars!**
 - *Do not miss out!*
 - Here is your chance to hear about a range of topics such as job/internship opportunities, emerging technologies, as well as a chance to ask questions
- Whether you're in the market or just curious about the SRC Member Companies, this is the event for you



<https://www.src.org/calendar/e007705/>

Pillar Science Common Issues & Links for Academics

- There are lots of help articles in Pillar Science which can help answer these questions.



- Here's an article about logging into Pillar Science
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/11198322803099-How-To-Login-to-Pillar-with-SRC-org-Credentials>
- Here's an article about update your profile in Pillar Science
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10330492961563-How-to-Edit-Your-Profile>
- Here's an article about adding students, administrators, or other academics to your project
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10330872380187-How-to-add-Students-Admins-or-other-Academics-to-Your-Project>
- Here's an article about submitting projects results and deliverables
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/11213311626139-How-to-Submit-Project-Results-previously-known-as-publications->
- SRC hosted a live demonstration for academics on January 31, 2023, and the recording is available
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/12543067480091-Pillar-Science-Demonstration-for-Academics-Video-Recording->



Pillar Science Common Issues & Links for Industry

- There are lots of help articles in Pillar Science which can help answer these questions.



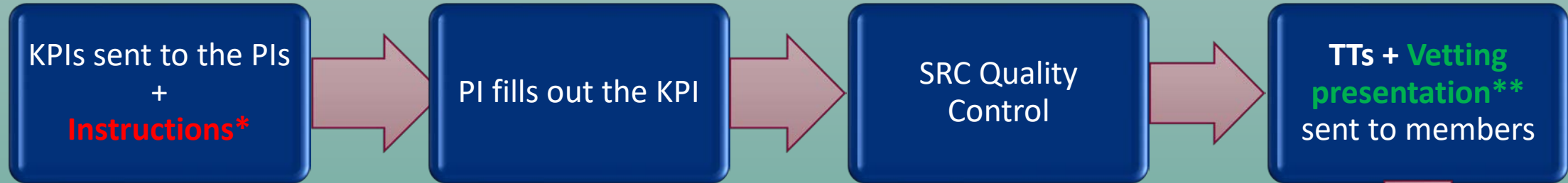
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- Here's an article about adding yourself as a liaison
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10092535189403-How-To-Add-Yourself-As-A-Liaison>
- Here's an article about how to find research projects of interest
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/9194403647131-Using-Projects-Page>
- There will be industry demonstrations for industry on February 14 and 21 on SRC website's calendar



Key Performance Indicators (KPI) Process Flow

SRC will be moving the KPI process to Pillar Science later in Q1'23

SRC will upload a XLS to edit within Pillar Science, PI will update throughout the year



- KPI instruction video is available:
<https://www.src.org/src/guide/kpi/>

KPIs/TTs are part of annual review process

*TT = “meaningful” Technology Transfers



Because of well-defined KPI process flow, SRC members can maximize their research experiences with meaningful Technology Transfers.



<https://www.src.org/src/guide/kpi/>

Intellectual Property Statement



- The information provided by researchers during this annual review
 - Is the property of the university and of the researchers presenting this information
 - May include research results sponsored by and provided to the funding members
 - May include intellectual property rights belonging to the university and SRC, to which sponsors may have license rights
- By attending or viewing this review, you are agreeing
 - Not to use this information for purposes unrelated to the review unless and until approved by SRC
 - To keep this information in confidence until the university and SRC have evaluated and secured any applicable intellectual property rights
- After any intellectual property rights have been secured, the SRC encourages the University and researchers to publish and freely disseminate this information and results of the sponsored research program.
 - Worldwide patent rights are waived if publication or public dissemination occurs prior to filing a corresponding U.S. provisional or utility patent application



General Data Protection Regulation

- Applies to SRC
- Personal data regulations
- Involves privacy notices, consent, and security
- SRC Privacy Policy



E-Kickoff Agenda

- 8 projects
- 10-minute presentations with 5-minute Q&A (live)
- Will be recorded to shared/reviewed after the event

Virtual Event
All Times in ET



<https://www.src.org/calendar/e007735/>

Hardware Security e-Kickoff of New Projects

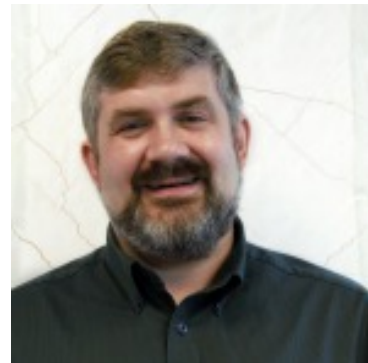
Monday, February 6, 2022

Time	Title	Speaker
1:00 - 1:15 pm	Welcome & Introduction	John Oakley / SRC
New Projects		
1:15 - 1:30 pm	Task 3124.001 : An Evolutionary AI-based Fuzz Testing for Extensive SoC Security Verification	Mark Tehranipoor / University of Florida
1:30 - 1:45 pm	Task 3125.001 : Secure and Programmable Open-Source RoT Augmented with IC Design Techniques for Side-Channel Attack Mitigation	Dennis M. Sylvester / University of Michigan – Ann Arbor
1:45 - 2:00 pm	Task 3129.001 : Automatic Discovery of Side-Channel Leakage	Michael Schwarz / CISPA
2:00 - 2:15 pm	Task 3127.001 : Safe and Secure Operating Systems for Root-of-Trust Silicon	Brad Campbell / University of Virginia - Charlottesville
2:15 - 2:30 pm	Task 3130.001 : Secure and Ultra-Low Energy Post-Quantum Accelerator for Resource Constrained devices	Eslam Tawfik / Ohio State University
2:30 - 2:45 pm	Task 3128.001 : Compositional Security Verification of Trusted Execution Environments	Prabhat Mishra / University of Florida
2:45 - 3:00 pm	Task 3194.001 : AutoMap: Automated Mapping of Security Properties	Farimah Farahmandi / University of Florida
3:00 - 3:15 pm	Task 3126.001 : Real-Time Edge-Based Security Monitoring and Reasoning	Mohsen Imani / University of California - Irvine

Thank You!



Opens?



John Oakley

Science Director

John.Oakley@src.org

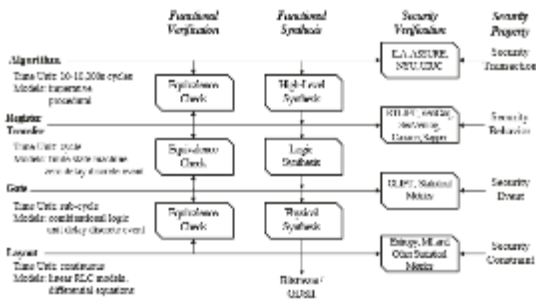
Hardware Security

8+ Year Pipeline of Hardware Security Research
 John Oakley, Science Director

The Hardware Security (HWS) Research Program is focused on developing strategies, techniques, and tools to provide assurance that electronic systems will perform as intended. Such assurance is a function of processes and tools integrated across all steps of design, manufacture, and distribution. In order to build a technological foundation that business and government can use to make systems that are trustworthy and secure, there is a need for fundamental, multidisciplinary research that spans architecture, design and manufacture.

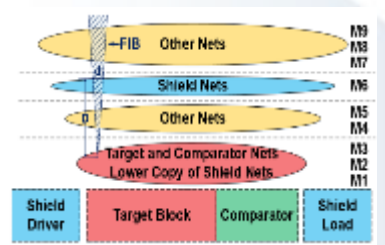
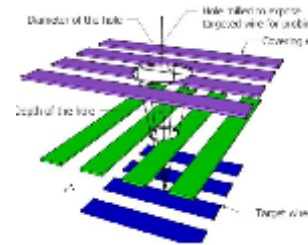
Current Research Portfolio is focused on:

- Security Metrics and Hardware Security Properties
- Taxonomy of Security Attacks/Flaws (like side channels)
- Counterfeit Detection and Avoidance
- Enabling Security by Design
- Security Verification and Validation



Future Research Directions

- New Research focus areas will include:
 - Handling for Dynamics Created by Future Artificial Intelligence devices
 - Real-time Attack Awareness and Mitigation Strategies
 - Novel approaches to End-to-End Security Solutions that eliminates the diverse communication method and inherent complexities.



SRC Liaison Program

Maximizing the Value of Participation

Move Yourself, Your Company and the Next Generation Forward

Develop the Workforce

- Provide relevant guidance for industry challenges
- Prepare students to enter industry or pursue future academics

Contribute to Research

- Encourage technology exchange between university and industry
- Bridge the conventional gap between academia and industry

Academia Contributes to Industry

- Provide an out of the box approach to current problems which enhance industry research and development enables a differentiated product for the marketplace
- Provide an outside perspective adding diversity to the thought process of how best to attack a challenge

Access New Technology

- Gain valuable insights into problems and solutions that will ultimately impact industry competitiveness
- Provide an effective way to deliver actionable research results directly into their companies

Identify the Best

- Identify the most compelling research from current and recent research

Expectation to have regular PI-Liaisons calls at least one every 4-8 weeks



SRC's Amazing Community

Academics solving meaningful problems
Increase of tech transfer to industry
Clear investment Return Of Investments

SRC Program Manager

- Runs Advisory Board and aligns research
- Educates PI about requirements and responsibilities
- Encourages Liaison participation
- Finds opportunities for further engagement

University Principal Investigator

- Pursues ambitious, ground-breaking research
- Schedules regular calls, every 4-8 weeks
- Arranges meet-ups at conferences
- Presents research at annual reviews

Research Scholar

- Leads meetings
- Presents findings
- Aims to present at TECHCON
- Is knowledgeable about SRC members

Industry Liaison

- Provides industry perspective to PI
- Transfers technology & people into company
- Advocates for SRC research
- Coordinates with Advisory Board

