ECE Graduate Studies – Summer 2019

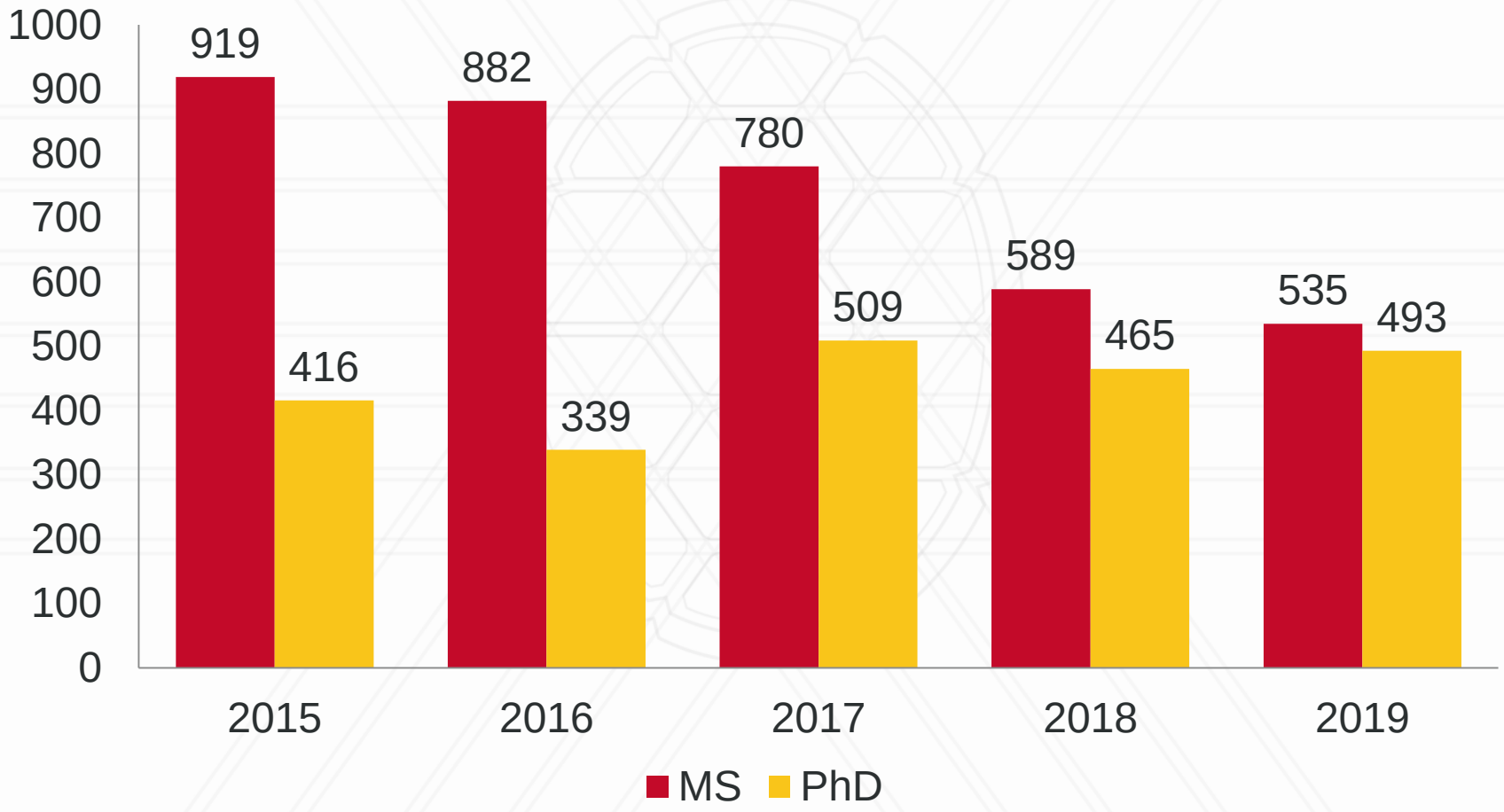
Professor Sennur Ulukus/ Graduate Studies Office/ Electrical and Computer Engineering

UNIVERSITY OF MARYLAND

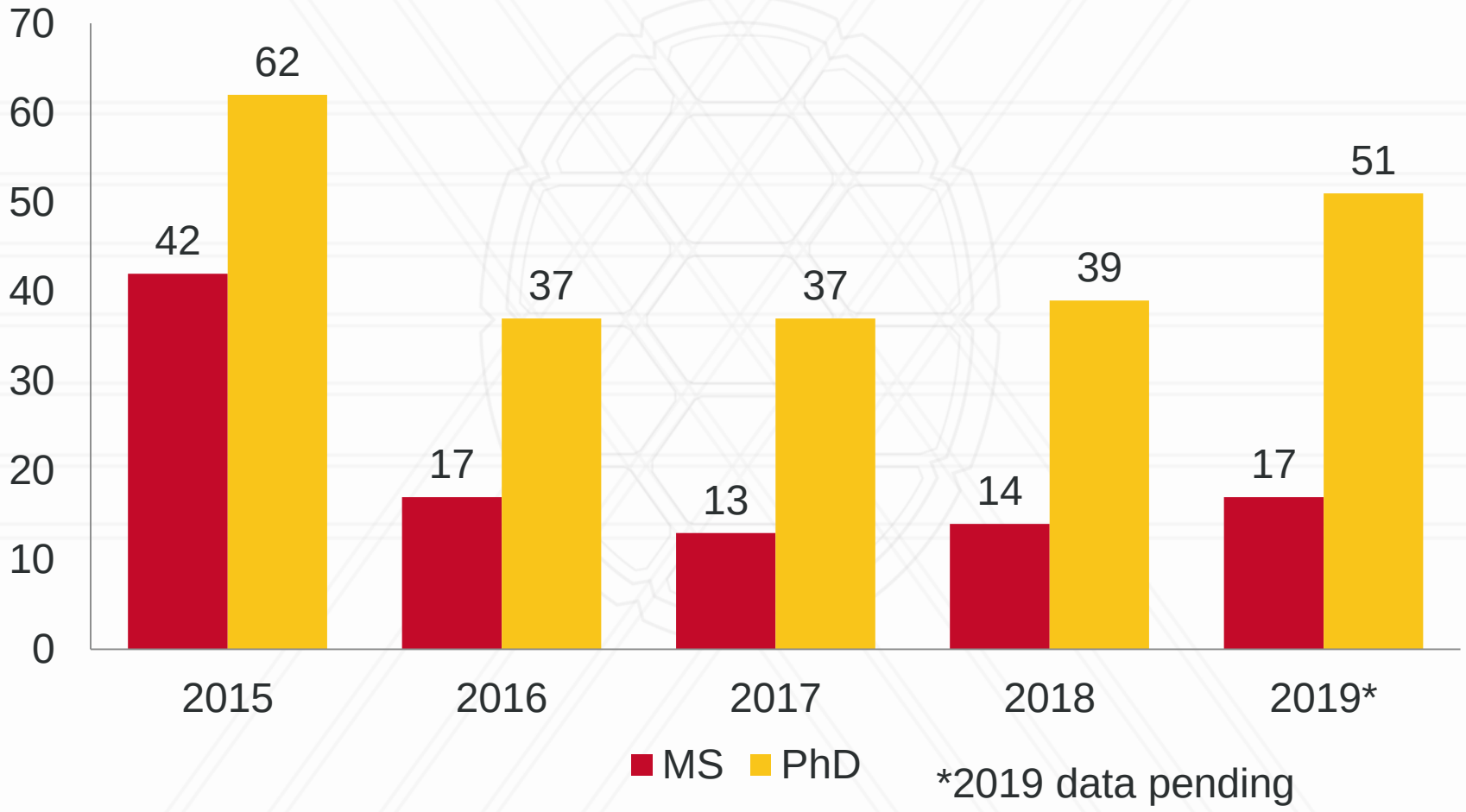
Three Items to Report Today

1. ECE graduate program
2. ENTS program
3. MS in ML proposal

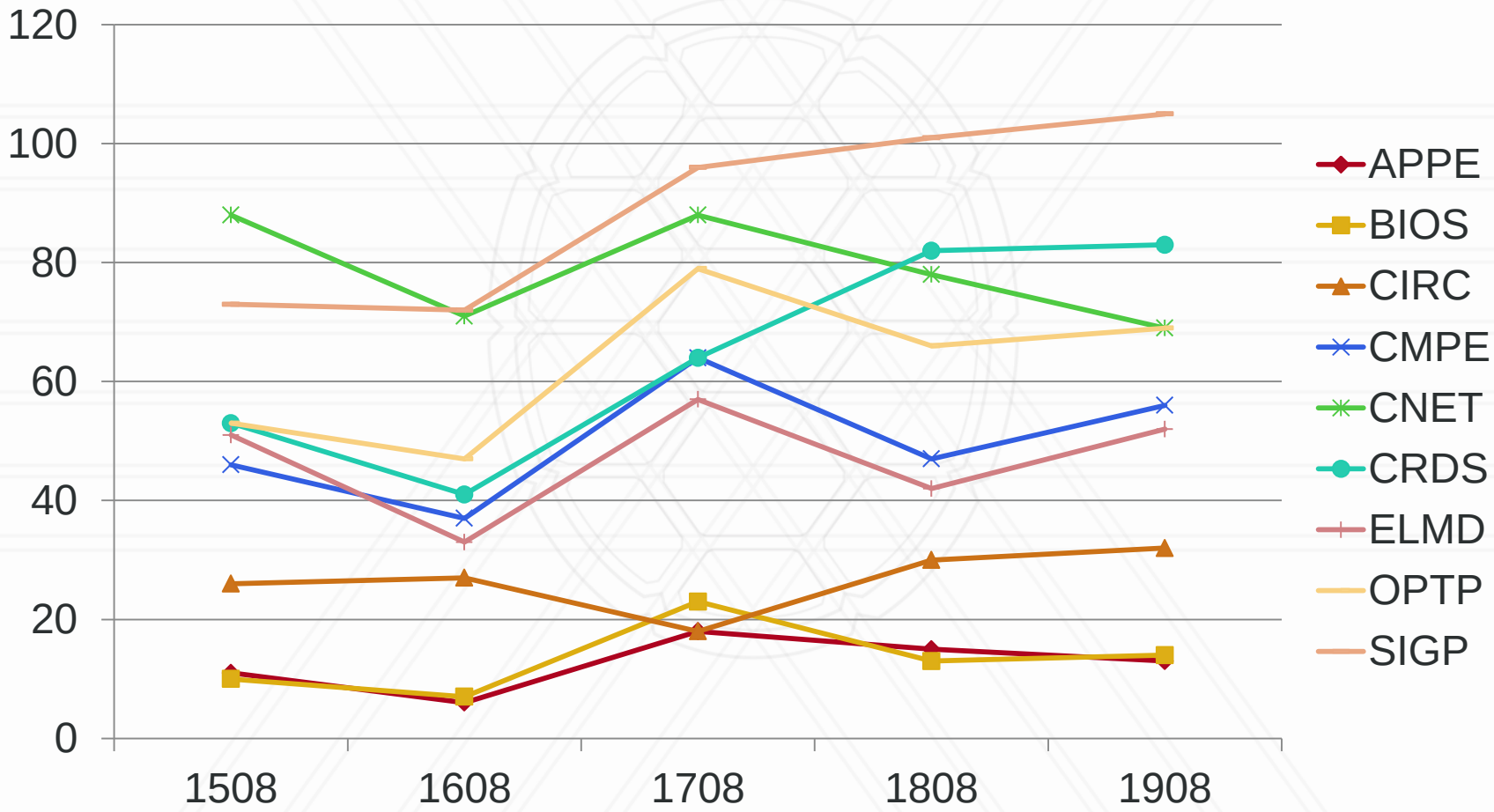
MS and PhD applications



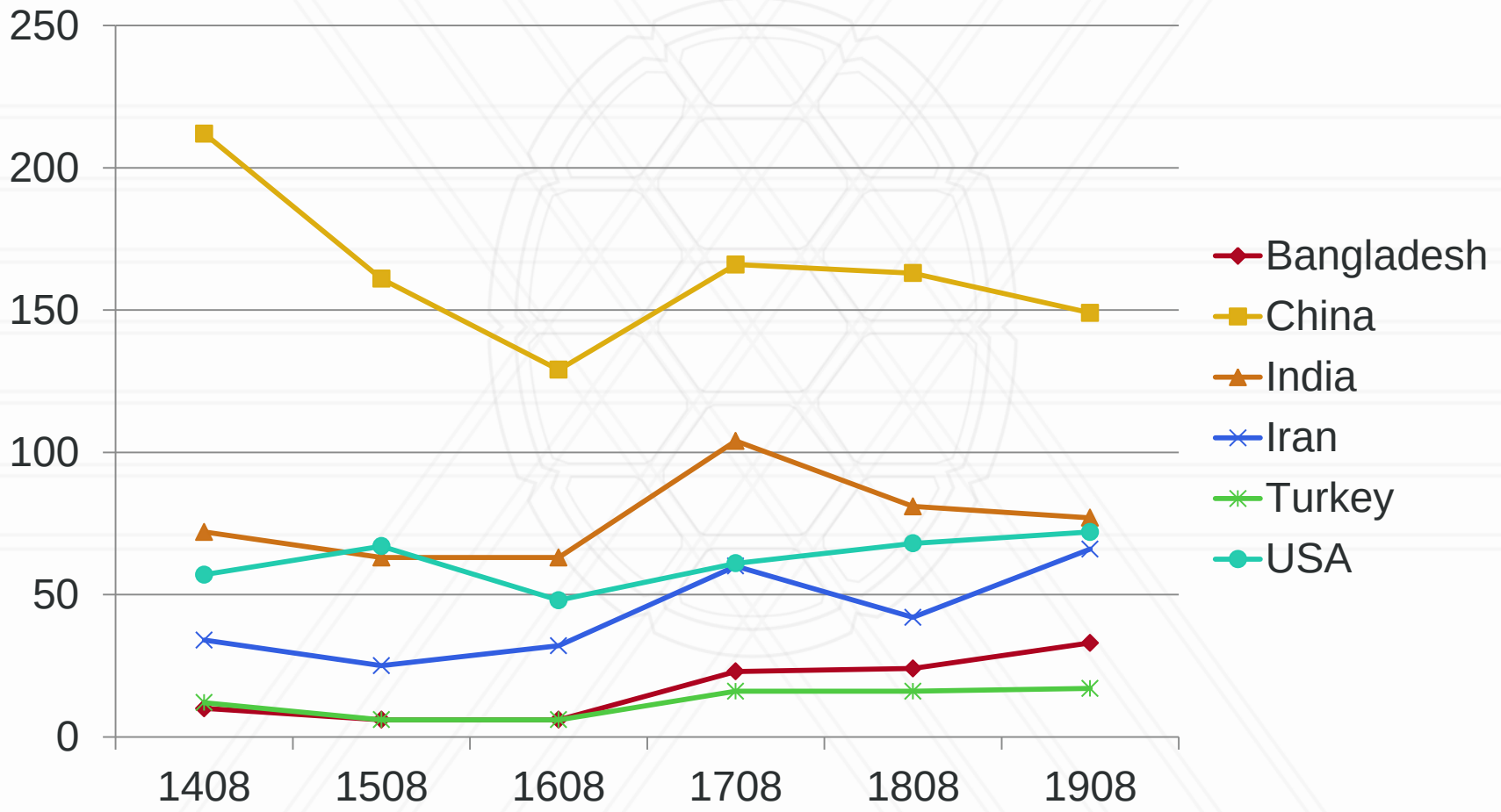
Incoming Graduate Students



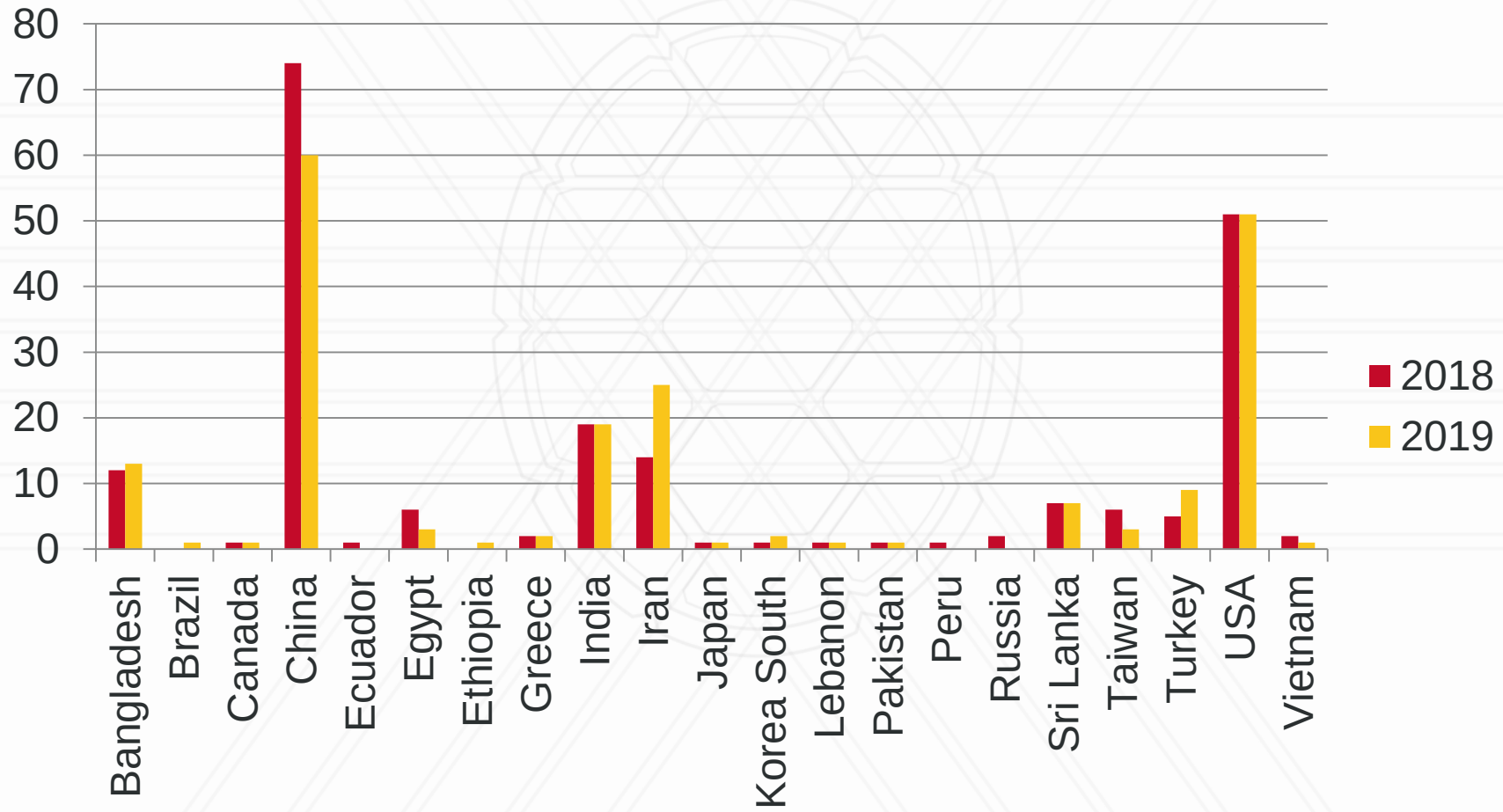
PhD Applications by Area



PhD Applications by Country



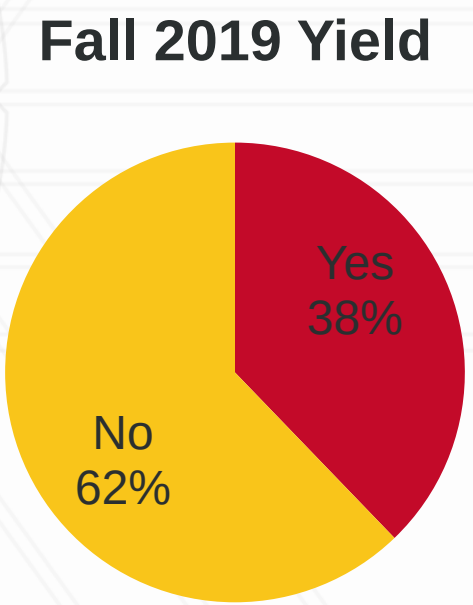
PhD Superb/Excellent Applications by Country



Fall 2019 Financial Offers

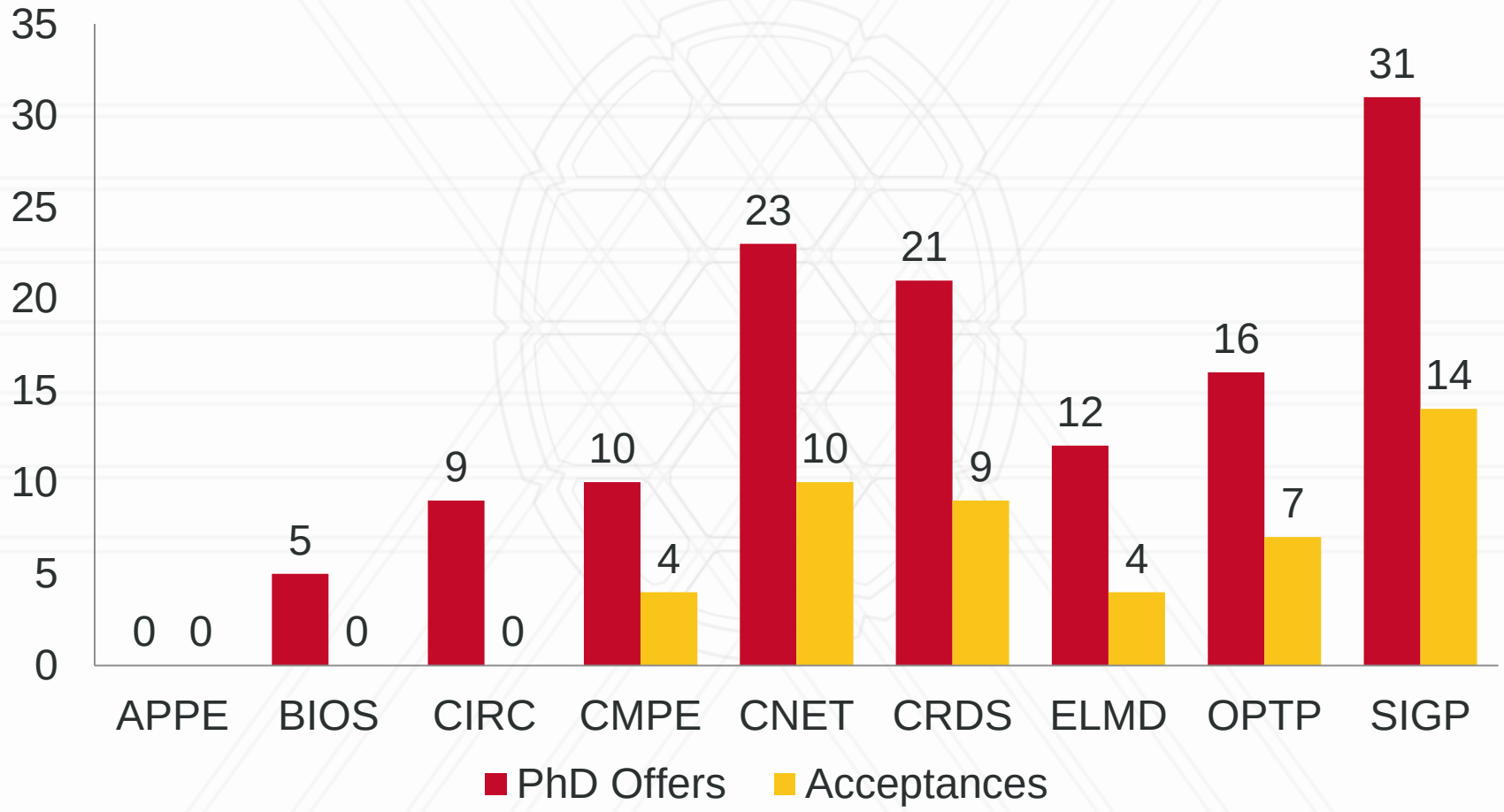
127 total PhD offers, 48 offers accepted

- Clark Doctoral Fellowship: 6/12 accepted (50%)
- GSR: 15/27 accepted (56%)
- GST: 6/28 accepted, (21%)
- GTA: 15/53 accepted, (28%)
- GRA: 6/7 accepted, (86%)

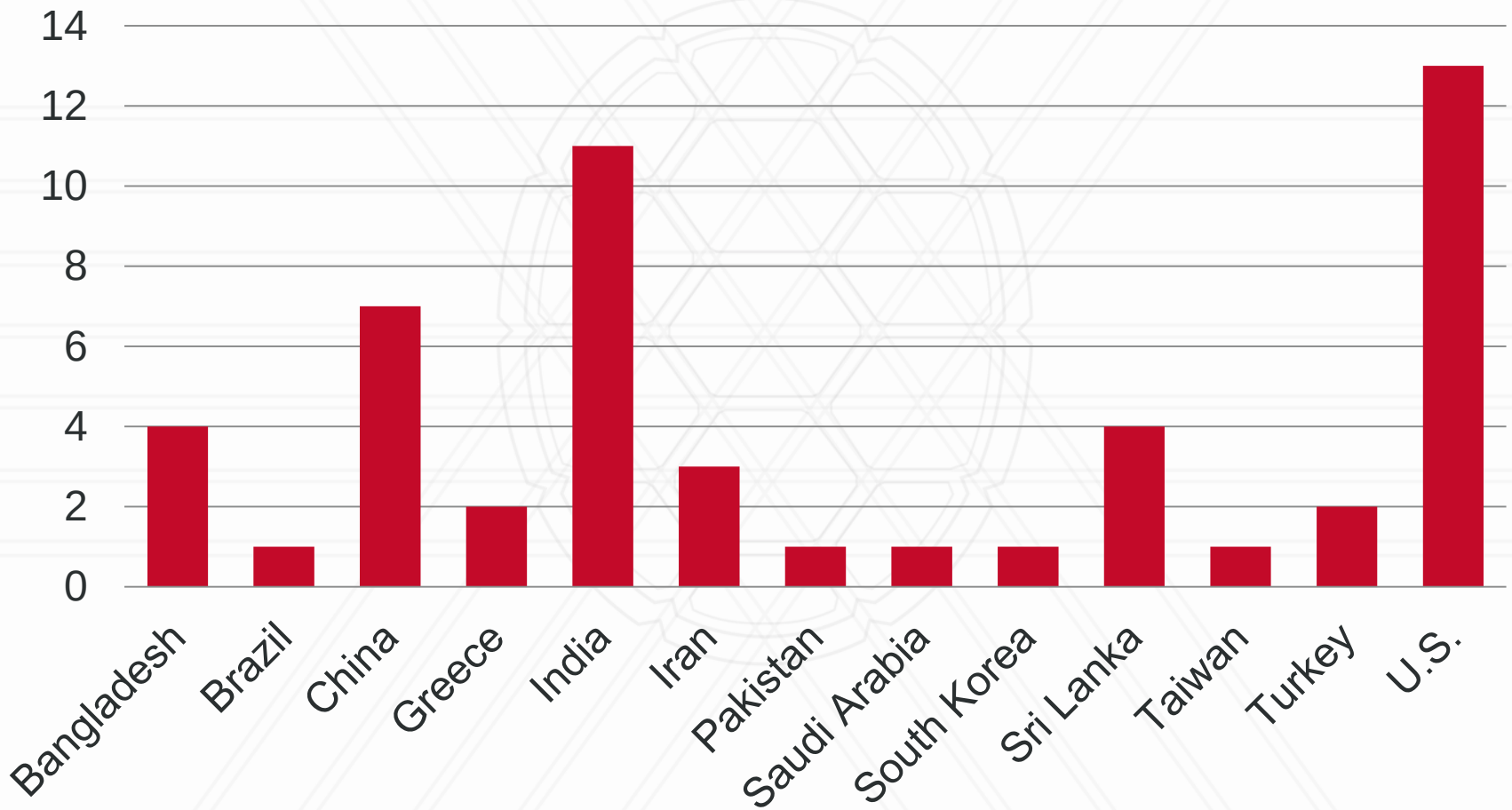


*Fall 2018 first round yield: 28%
Second round yield: 31%

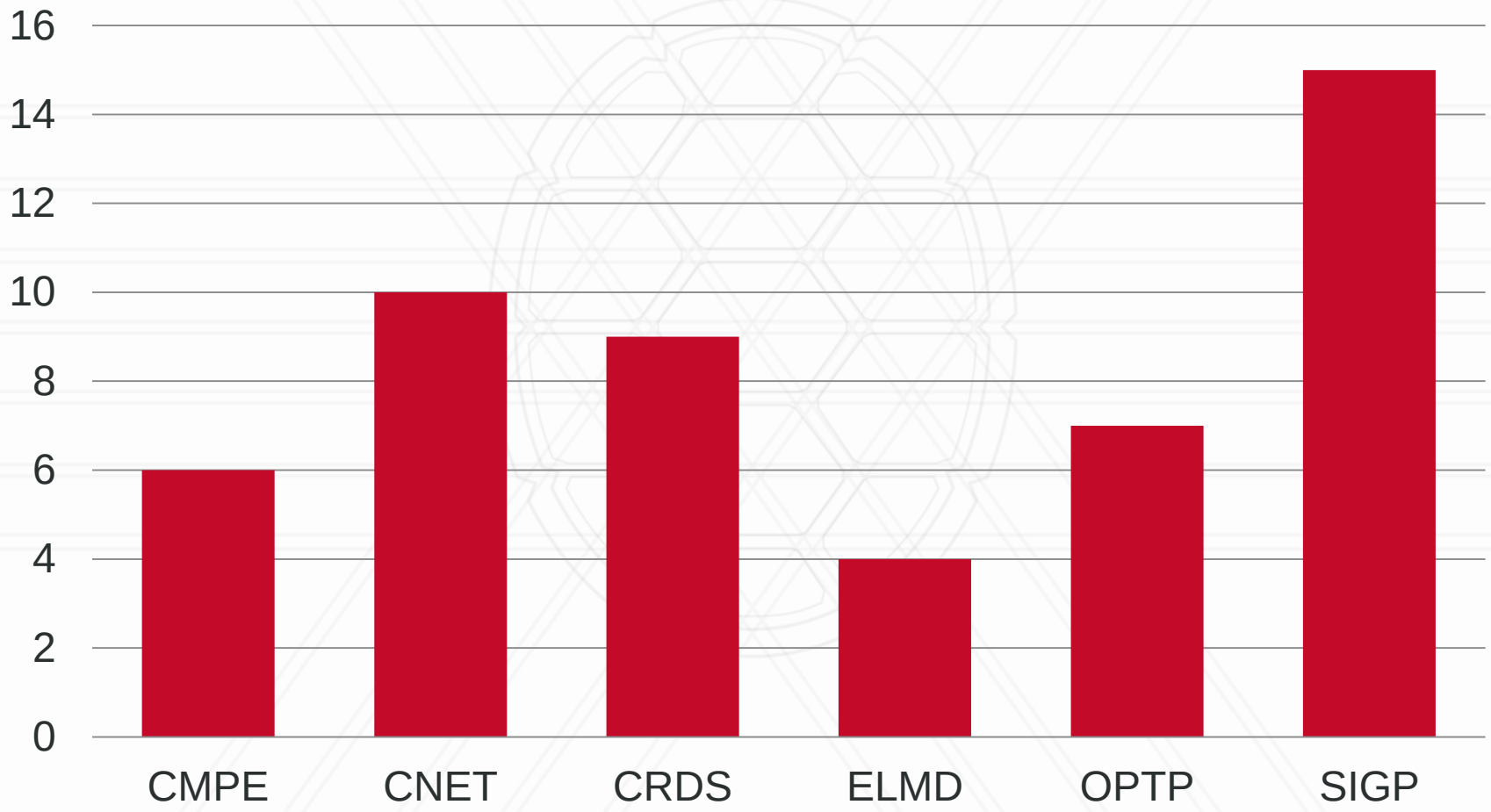
PhD Offers by Area



Fall 2019 New PhD Students (by country)



Fall 2019 New PhD Students (by area)



Fall 2019 PhD Application Fee Waiver

2019 ECE Graduate Visit Day

UNIVERSITY OF MARYLAND

ECE Graduate Visit Day Agenda

Department of Electrical and Computer Engineering, University of Maryland

Monday, March 25, 2019

9:00 am	**Meet in hotel lobby to walk to campus (hotel guests only)**
9:30 am	**Welcome and breakfast, 2460 A.V. Williams Building** Professor Joseph JaJa, Department Chair Professor Sennur Ulukus, Associate Chair, Distinguished Scholar-Teacher Melanie Prange, Director, Graduate Academic & Student Affairs Emily Irwin, Program Manager, Graduate Studies Guerda Mervilus, Program Coordinator, Graduate Studies Maria Hoo, Program Management Specialist
10:00 am	**Faculty research presentations** Professor Dana Dachman-Soled (Cybersecurity) Professor Kevin Daniels (Microelectronics) Professor P.S. Krishnaprasad (Controls and robotics) Professor Min Wu (Signal Processing) Professor Jeremy Munday (Electrophysics)
11:00 am	**Campus tour**
12:00 pm	**Lunch with faculty and graduate students**
1:00 pm	**Individual meetings with faculty as scheduled**

****Return to hotel at your convenience****

Visit Day Statistics:

- 47 applicants invited
- 20 attended
- 11 accepted offers

Faculty Research Presentations:

- Professor Dana Dachman-Soled (Computer Engineering)
- Professor Kevin Daniels (Microelectronics)
- Professor P.S. Krishnaprasad (Controls)
- Professor Min Wu (Communications and Signal Processing)
- Professor Jeremy Munday (Electrophysics)

Fellowships and Awards

ECE Distinguished Dissertation Award

Shahriar Aghaeimeibodi, advised by Prof. Waks

Integrated Quantum Photonic Circuits with Quantum Dots

Ayan Mallik, advised by Prof. Khaligh

Regulated Transformer Rectifier Unit for More Electric Aircrafts

S. Sina Miran, advised by Prof. Babadi

Efficient Solutions to High-Dimensional and Nonlinear Neural Inverse Problems

Other Notable Awards

Ann G. Wylie Dissertation Fellowship

- **Yuntao Liu**: *Enhancing IP Security of SoCs using Hardware Obfuscation*
- **Bathiya Senevirathna**: *Development of a Biosensor for Real-time Label-free Monitoring of Cell Viability*
- **Shahriar Aghaeimeibodi:** *Integrated Quantum Photonic Circuits with Quantum Dots*

Kulkarni Summer Research Fellowship

- **Abhishek Chakraborty**

Dean's Research Award (Ph.D.)

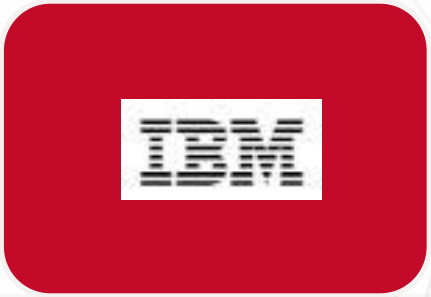
- **Ayan Mallik**: *Regulated Transformer Rectifier Unit for More Electric Aircrafts*

Dean's Research Award (M.S.)

- **Nate Ferlic:** *Forward Scattering Meter for Visibility Measurements*

External Fellowships and Awards

New database external fellowships and awards to encourage and assist our graduate students to compete for these awards.

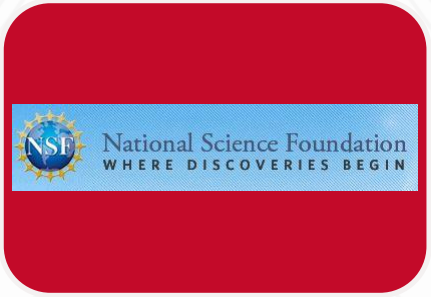


IBM PhD Fellowship

Google PhD Fellowship

Microsoft PhD Fellowship

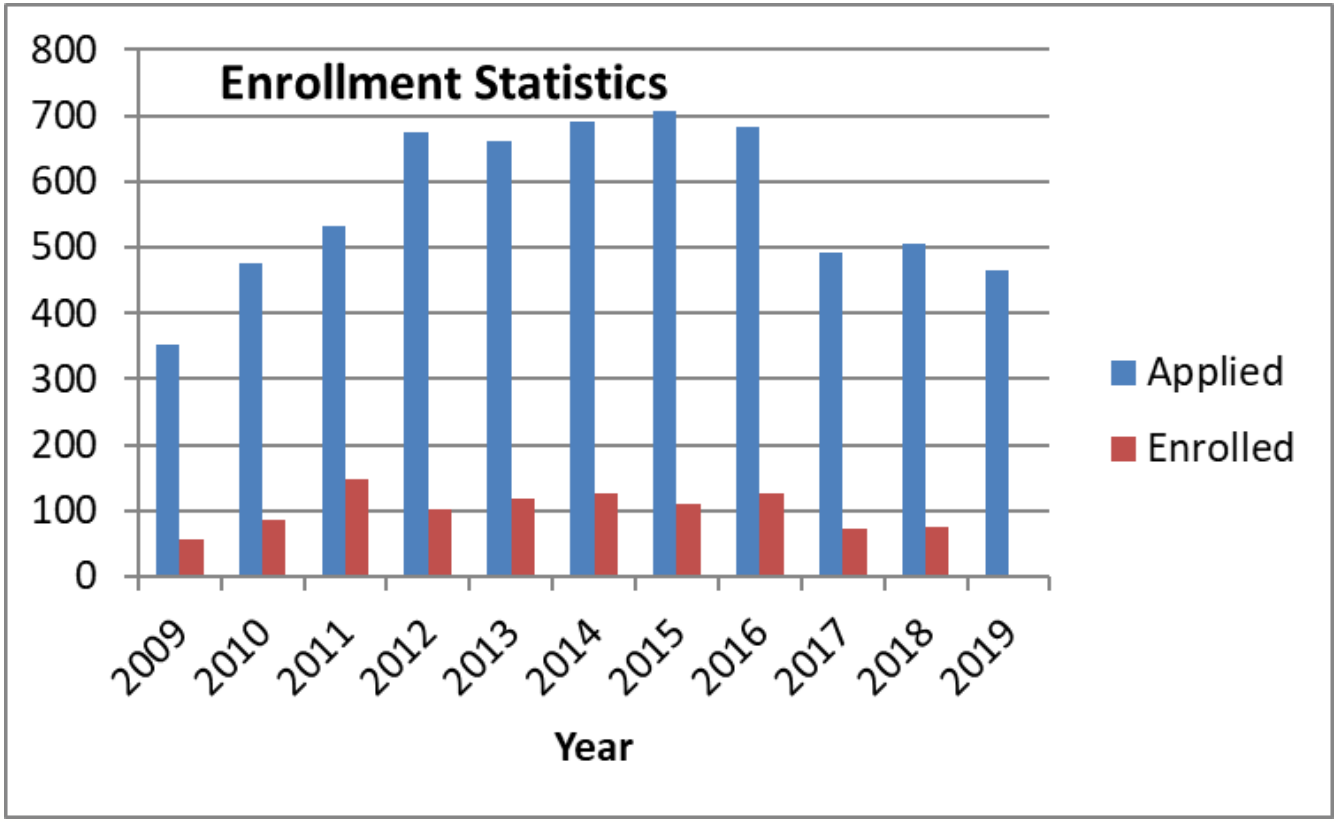
ARCS Fellowship



NSF Graduate Research Fellowship

Qualcomm Innovation Fellowship

ENTS Program Statistics: Enrollment



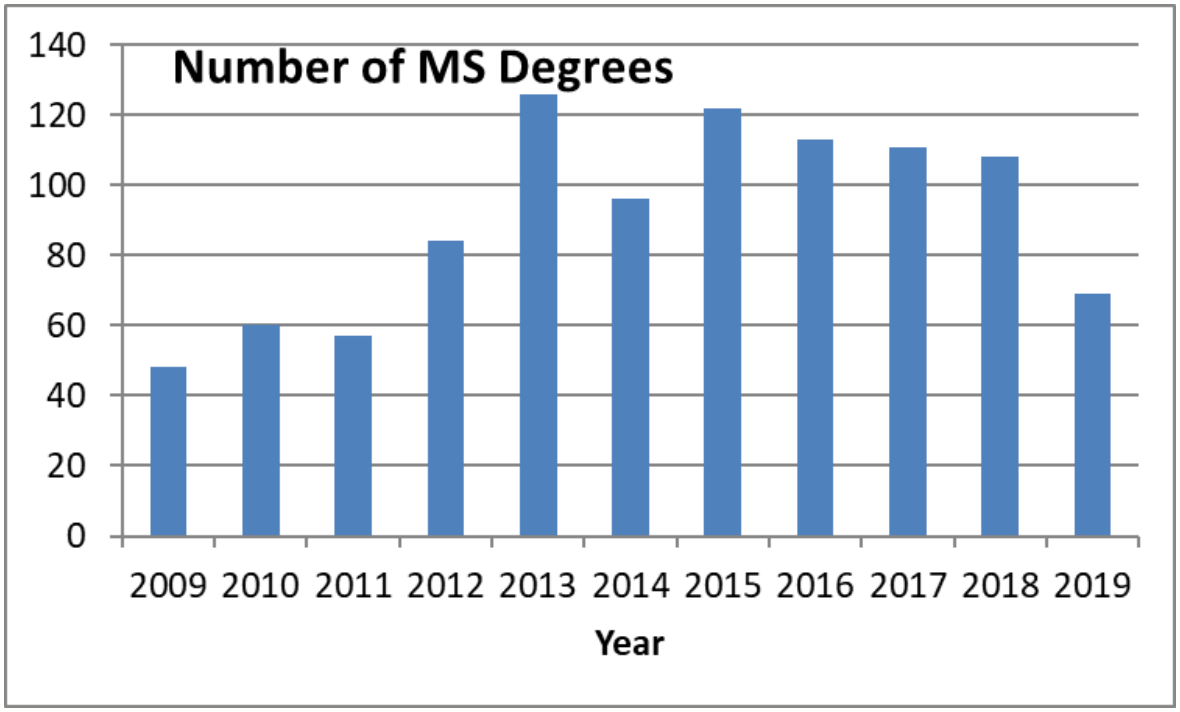
Applications for Fall 2019:

Direct applicants: 98 ECE referrals: 129 CS Referrals: 211

Enrollment in 2018-2019:

Fall 2018: 64 Spring 2019: 5, Fall 2019: Not known yet

ENTS Program Statistics: MS Degrees



Recent graduation stats:

Spring 2018:
- **108** MS degrees awarded

Summer 2018:
- **1** MS degrees awarded

Fall 2018:
- **5** MS degrees awarded

Spring 2019:
- **69** MS degrees awarded

Note: Fall 2019 graduation data is not available yet.

ENTS New Initiatives for 2018-2019

- Donation received from Juniper Networks:
  - 30 MX5 routers and 60 EX switches
  - 2 Lenovo servers
  - Money for lab renovation
  - Will be used to expand the current ENTS Networking Lab
- New courses for Fall 2019:
  - ENTS 669C: Special Topics in Computing: Operating Systems
    - How operating systems work under the hood
  - ENTS 759F: Advanced Topics in Wireless Communications: 5G Radio Access Networks and Technologies
    - One of the first courses offered that covers the new 5G cellular standard

ENTS Amazon Event

- Workshop and Hiring/Interviewing event
- Similar events with
  - Facebook
  - Juniper Networks
- Career Day with guest from Juniper
- Red Hat Seminar on DevOps and containers

ENTS Recruitment Efforts

- Marketing and Outreach
  - International Outreach
    - Email and mail campaign during January/February 2019
    - Social media outreach during January 2019
  - Domestic Outreach
    - Email campaign during January/February 2019
  - Virtual Info Session (February 2019) – streamed live online
    - For prospective applicants
    - Welcome, program overview, and live Q&A with ENTS alumni
  - Virtual Open House (May 2019) – streamed live online
    - For admitted students
    - Welcome, elective showcase, and live Q&A with current students

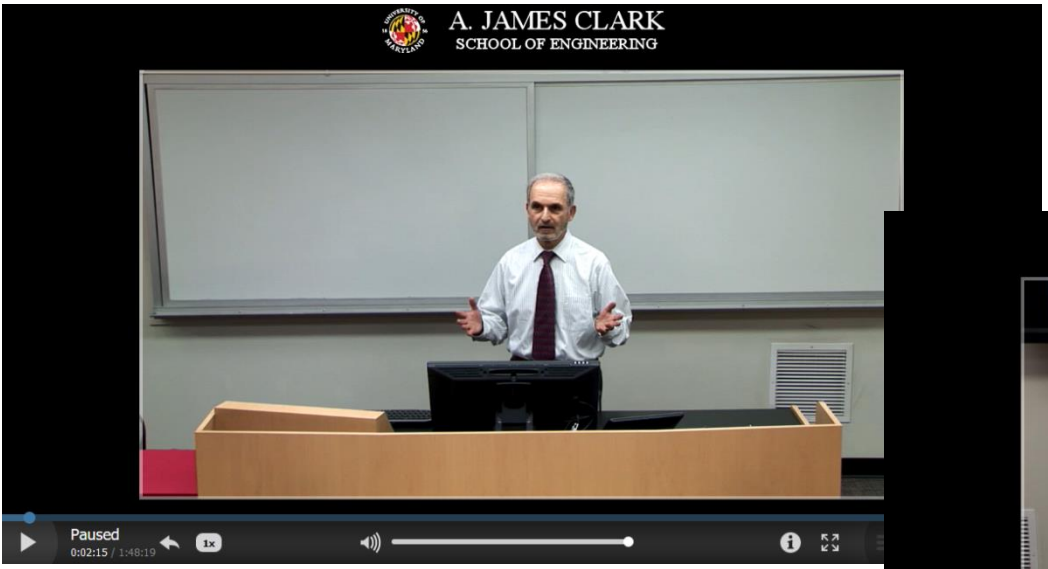
Social Media Outreach

Social media sites: Linked-In, Facebook and yocket.in

Activities:

- Posted ENTS e-flyer
- Posted ENTS ads with link to ENTS website
- Posted invitations to live ENTS Virtual Info Session
- Posted link to recorded ENTS Virtual Info Session

ENTS Virtual Open House



- Streamed live from UMD
- Total number of views: 203

- Welcome
- Program overview
- Elective showcase
- Live Q & A with current ENTS students

MS in Machine Learning Program

- New professional MS program proposed by ECE and CS
  - Similar to the ENTS program
  - Technical only (no business component)
  - Focus: practical, industry-oriented, with solid foundations
  - Inspired by similar existing programs at CMU, NYU, Columbia
- Approval process:
  - Passed College PCCs (March-April 2019)
  - Passed Graduate PCC (April 26, 2019)
  - Passed Senate PCC (May 3, 2019)
  - Last two steps:
    - Signoff by University President
    - Signoff by USM Chancellor
- Preparations underway for start in fall/winter 2019:
  - Staffing, web-page, advertisement, course development, etc.

MS in Machine Learning Program

- Degree requirements:
  - 30 credits total: 6 core courses, 4 elective courses, scholarly paper
- Core courses:
  - MSML 601: Probability and Statistics
  - MSML 602: Introduction to Optimization
  - MSML 603: Computing Systems for ML
  - MSML 604: Algorithms and Data Structures for ML
  - MSML 605: Applied Machine Learning
  - MSML 606: Data Science
- Electives:
  - ENML 610: Advanced Machine Learning
  - ENML 612: Deep Learning
  - ENML 620: Estimation and Detection
  - ENML 621: Digital Signal Processing
  - ENML 630: Numerical Methods
  - ENML 640: Computer Vision
  - ENML 650: Cloud Computing
  - ENML 651: Big Data Analytics

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Professor Sennur Ulukus
2337 AV Williams Bldg., College Park, MD 20742
301.405.4909 / ulukus@umd.edu