Fall 2018 ECE Graduate Studies

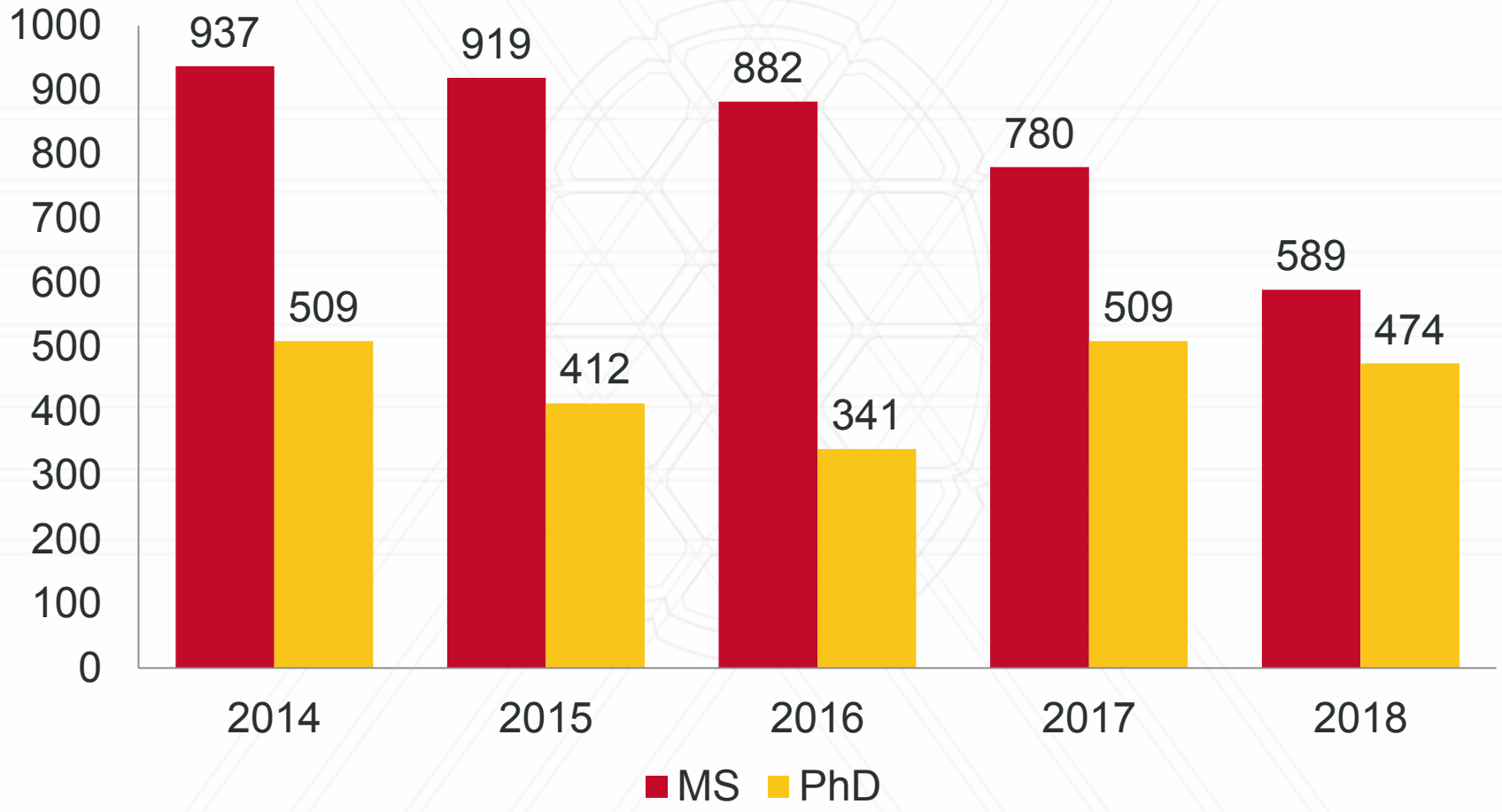
Professor Sennur Ulukus/ Graduate Studies Office/ Electrical and Computer Engineering

UNIVERSITY OF MARYLAND

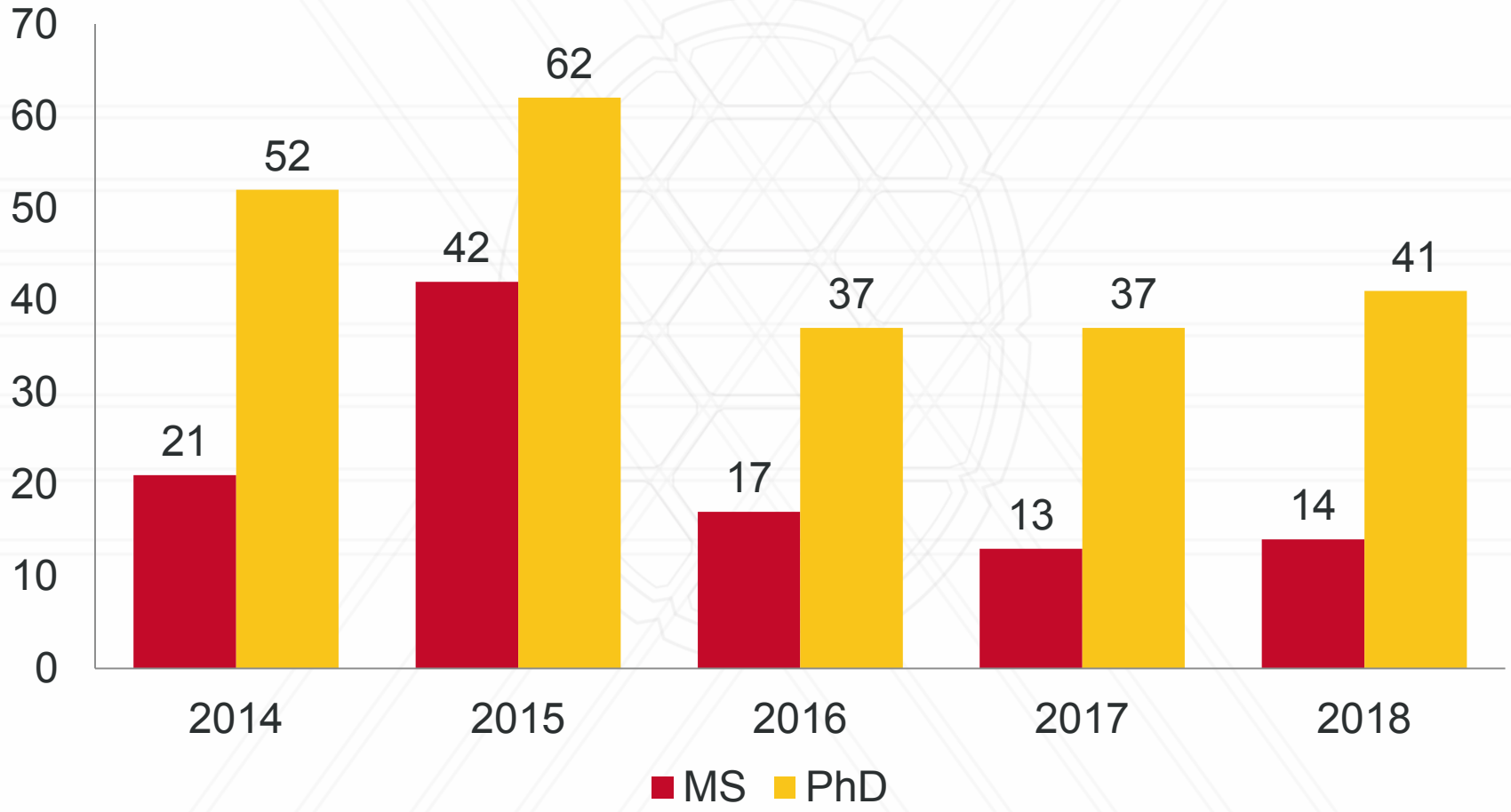
Three Items to Report Today

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

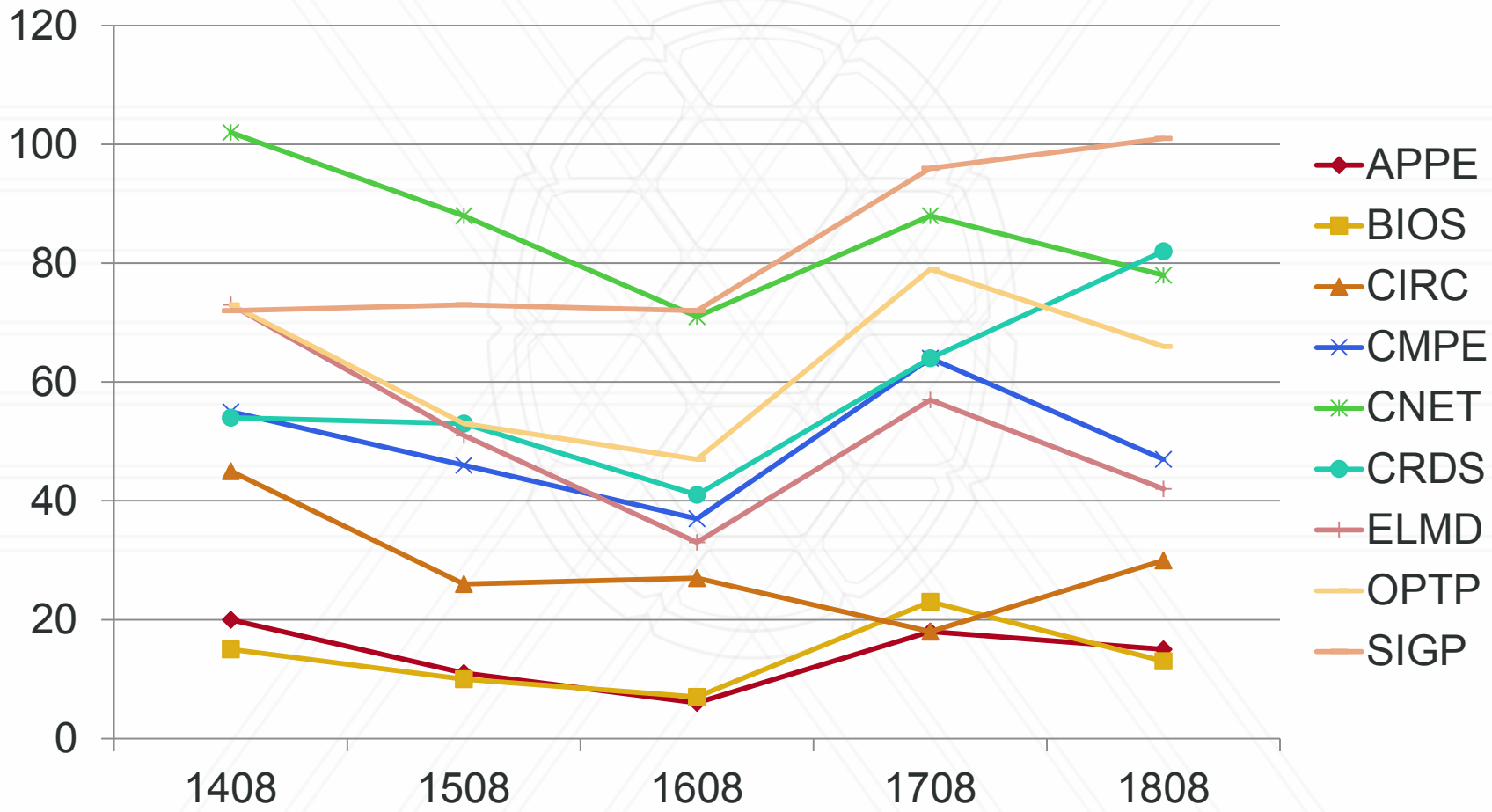
MS and PhD applications



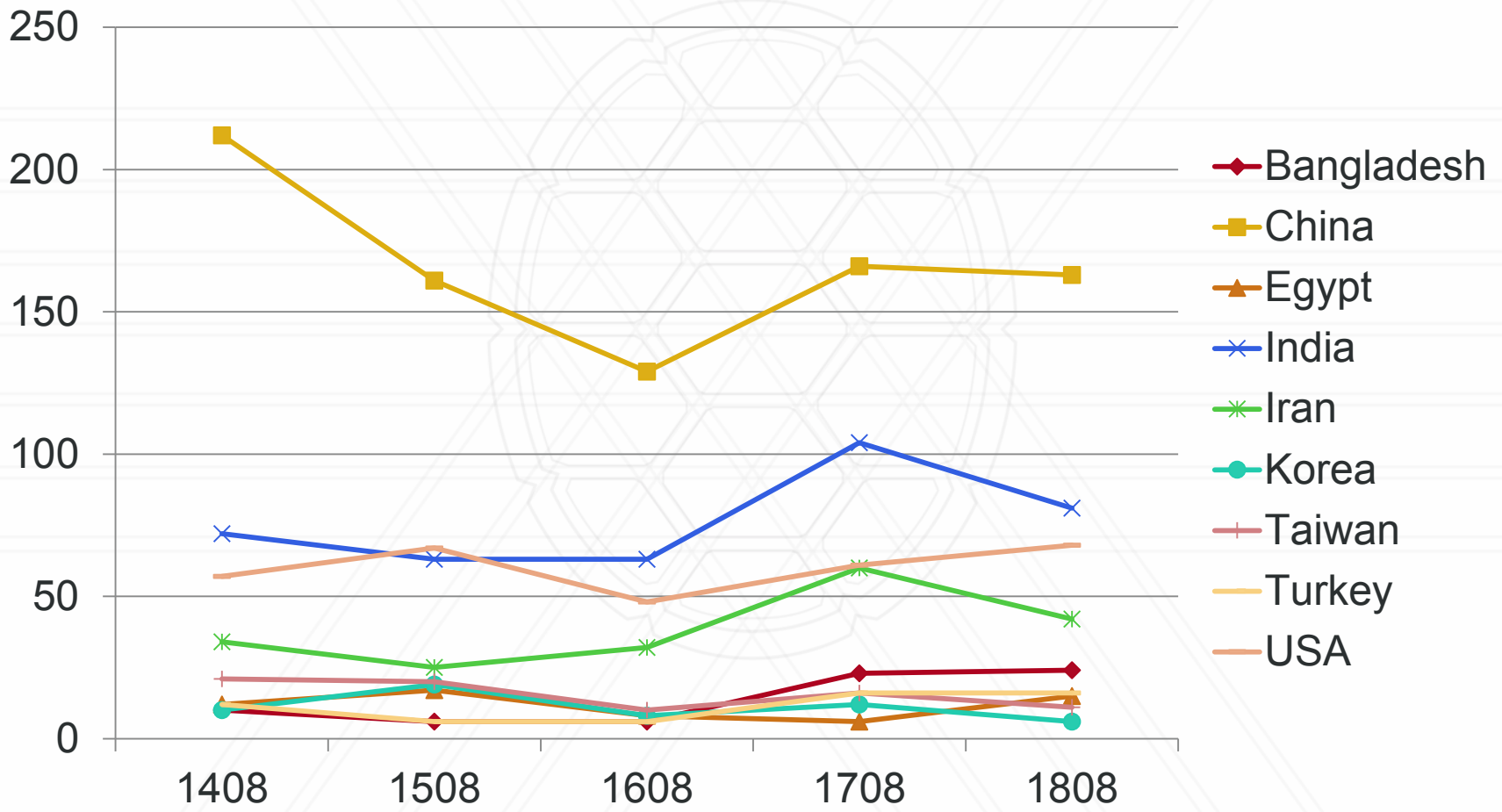
Incoming Graduate Students



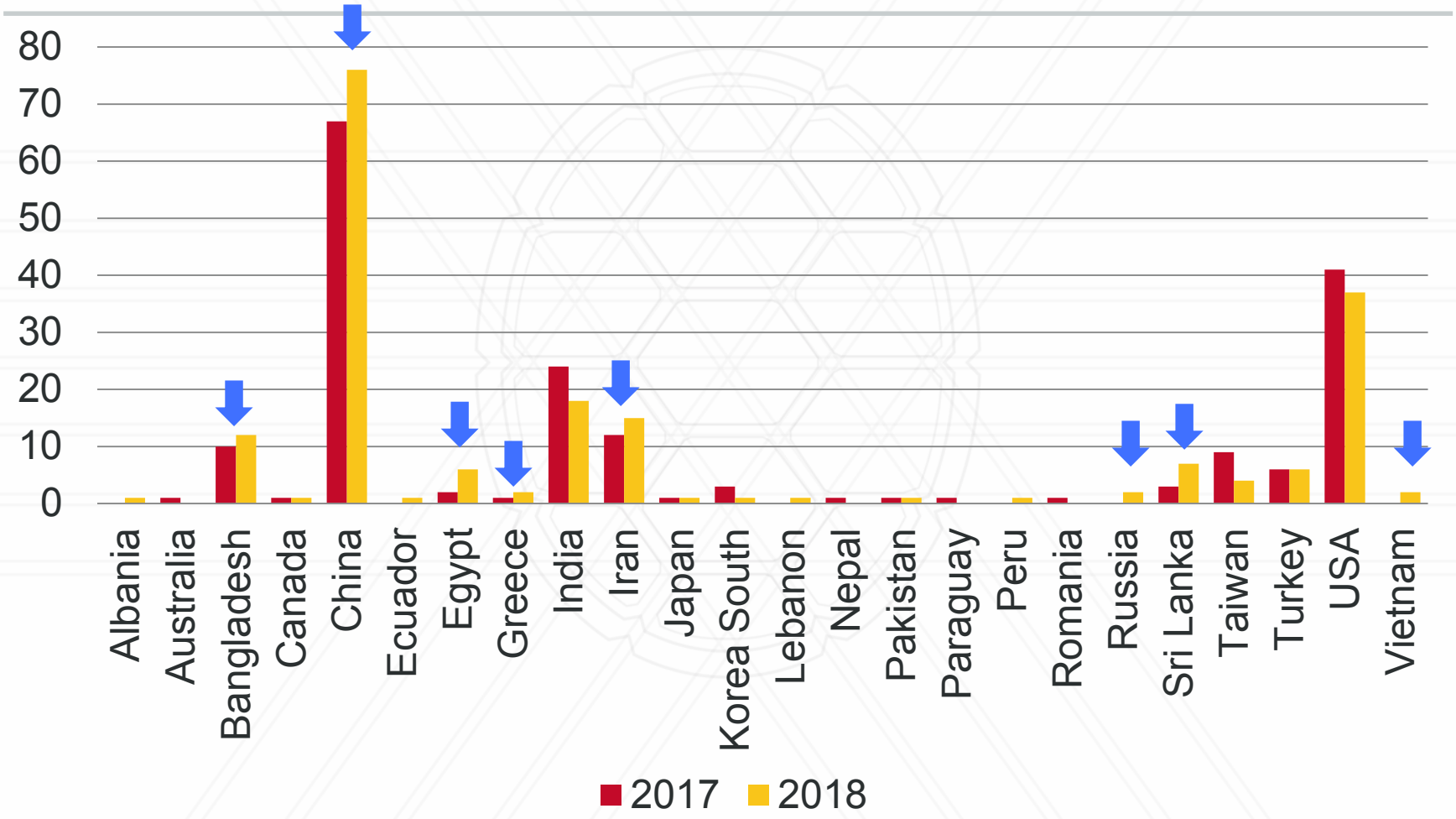
PhD Applications by Area



PhD Applications by Country



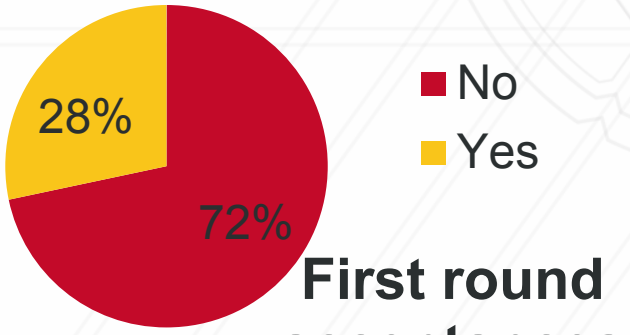
PhD Superb/Excellent Applications by Country



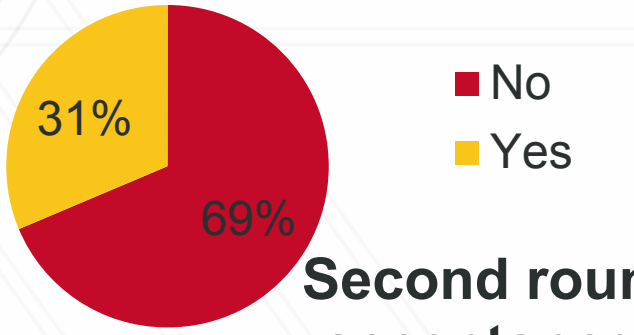
Fall 2018 Financial Offers

119 total PhD offers, 37 acceptances

- Clark Doctoral Fellowship: 4/13 accepted
- Dean's Fellowship: 19/51 accepted
- GTA: 12/51 accepted
- GRA: 2/4 accepted

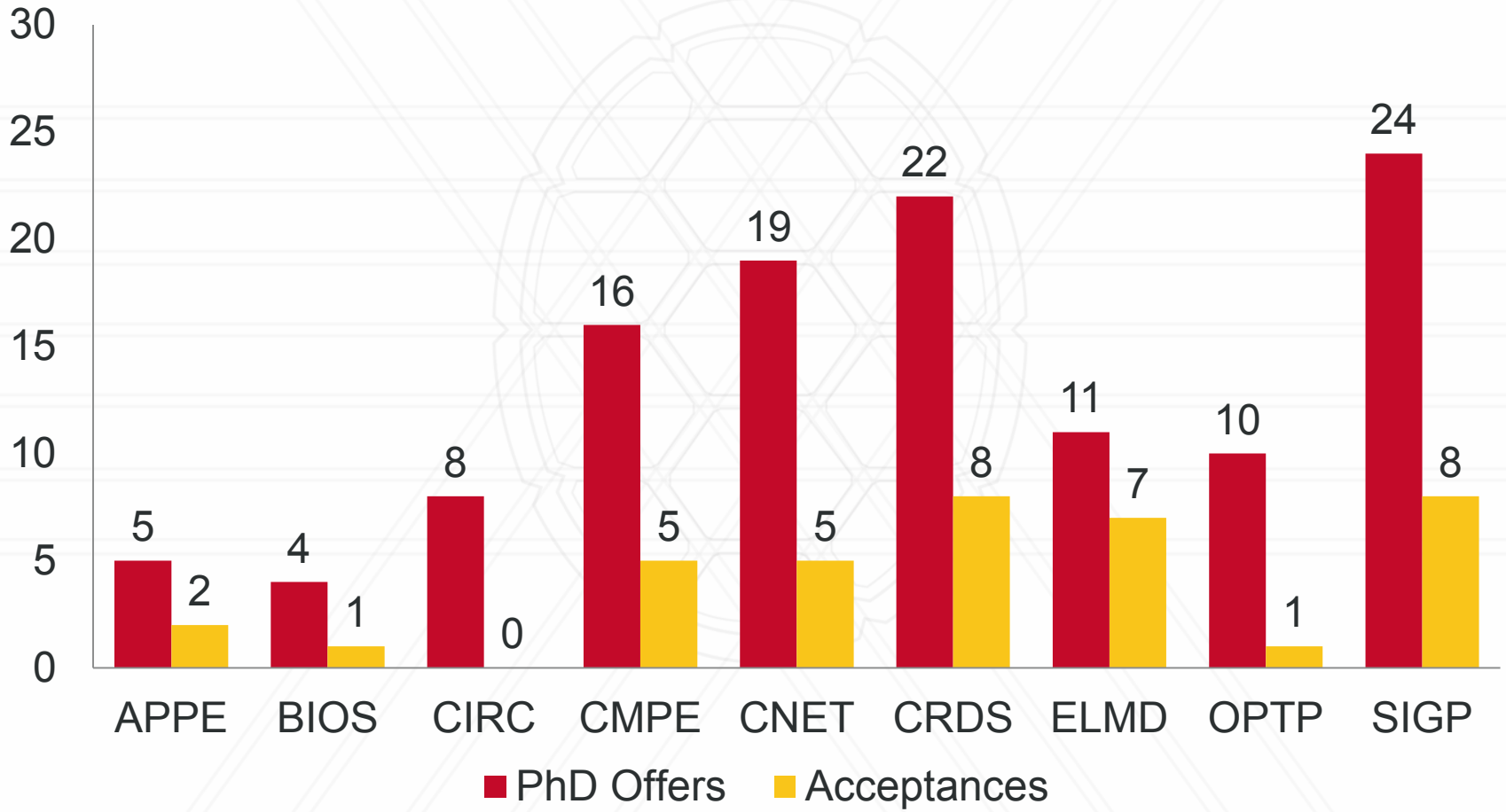


First round acceptances



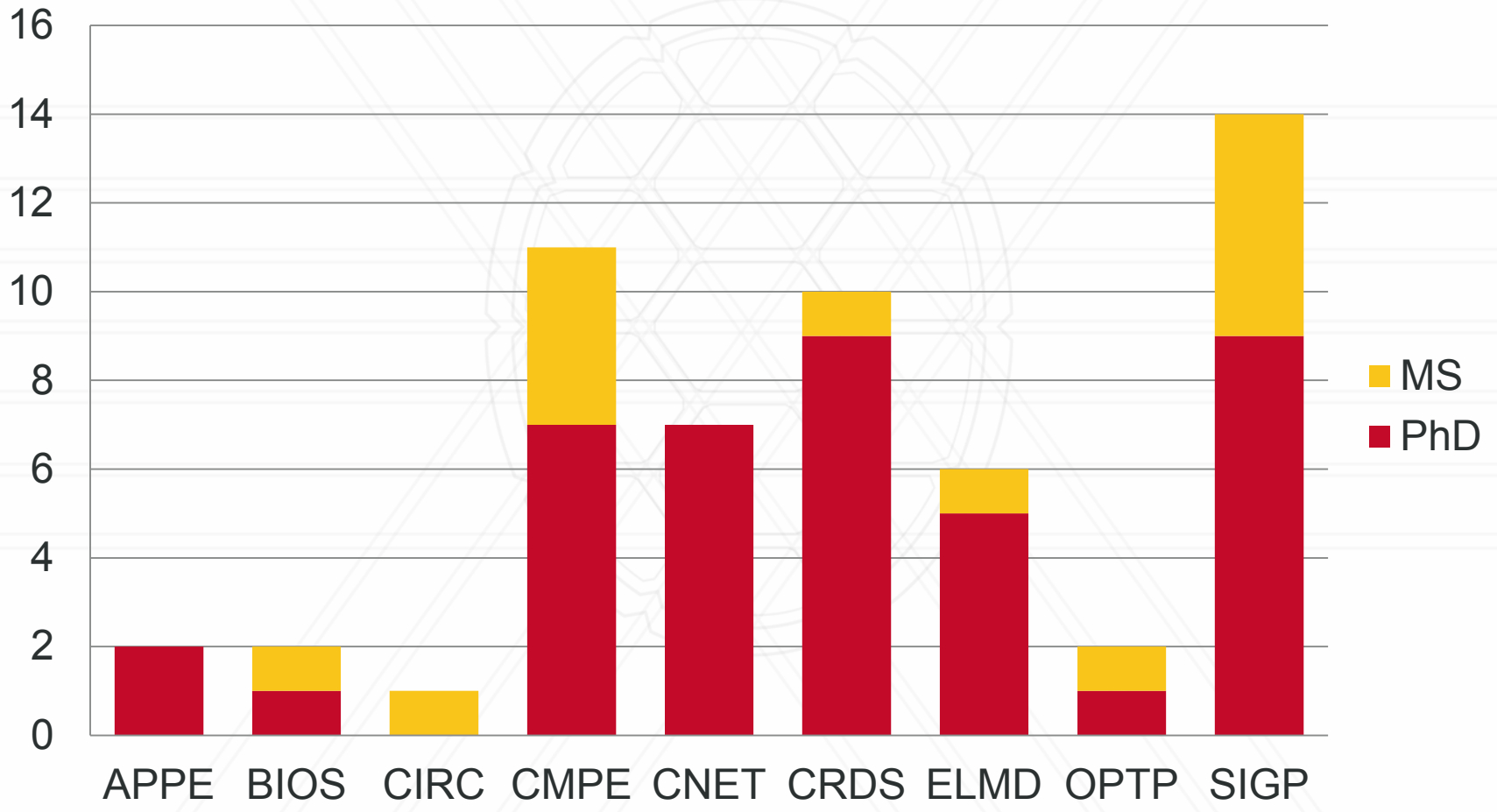
Second round acceptances

PhD Offers by Area



Fall 2018 New Students (by country)

Fall 2018 New Students (by area)



Fall 2019 PhD Application Fee Waiver

2018 ECE Graduate Visit Day

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ECE Graduate Visit Day

Department of Electrical and Computer Engineering, University of Maryland
Monday, March 26, 2018

9:30 am	Welcome, 2460 A.V. Williams Building
10:00 am	Faculty Research Presentations
11:00 am	Campus Tour
12:00 pm	Lunch with Faculty
1:00 pm	Meetings with Faculty – See Faculty Meeting Schedule
2:30 pm	Lab Tours – Depart from 2460 AVW
2:30 pm	Joint Quantum Institute, Quantum Photonics Group
3:05 pm	MEMS Sensors and Actuators Laboratory Tour
3:40 pm	Intelligent Servosystems Laboratory (ISL) Tour
4:30 pm	Return to hotel
6:30 pm	Dinner with Graduate Students *Gordon Biersch, Washington, DC*

Visit Day Statistics:

- 36 applicants invited
- 21 attended
- 7 accepted offers

Faculty Research Presentations:

- Professor Rama Chellappa (Machine learning)
- Professor Dana Dachman-Soled (Cybersecurity)
- Professor Alireza Khaligh (Power electronics)
- Professor P.S. Krishnaprasad (Controls and robotics)

Fellowships and Awards

ECE Distinguished Dissertation Award

Yupeng Zhang, advised by Prof. Papamanthou
Security and Privacy in Cloud Computing

Swaminathan Sankaranarayanan, advised by Prof. Chellappa
Towards Robust and Invariant Feature Representations in Deep Learning

Chuan Shi, advised by Prof. Khaligh
Propulsion-System-Integrated Onboard Chargers for Electric Vehicles

Sohil Shah, co-advised by Prof. L. Davis and Prof. Goldstein
Optimization Algorithm using priors in Computer Vision

Karim Banawan, advised by Prof. Ulukus
Private Information Retrieval and Security in Networks

Other Notable Awards

Ann G. Wylie Dissertation Fellowship

- **Lisa Krayer**: Nano-scale devices for powering the future and seeing in the dark
- **Aneesh Raghavan**: The Value of Information and Noncommutative Probability Models in Multi-Agent Detection and Control

Summer Research Fellowship

- **Proloy Das**
- **Debdipta Goswami**

All-S.T.A.R. Fellowship

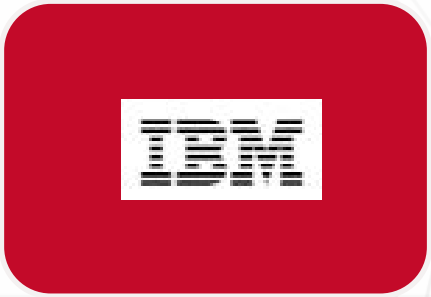
- **S. Sina Miran**

Dean's Research Award (M.S.)

- **Eli Lorenzi**: Improvement and Analysis of Networked Animal-Borne Sensors

External Fellowships and Awards

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

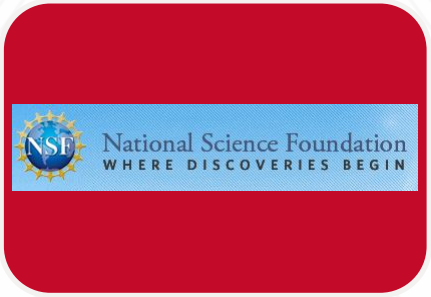


IBM PhD Fellowship

Google PhD Fellowship

Microsoft PhD Fellowship

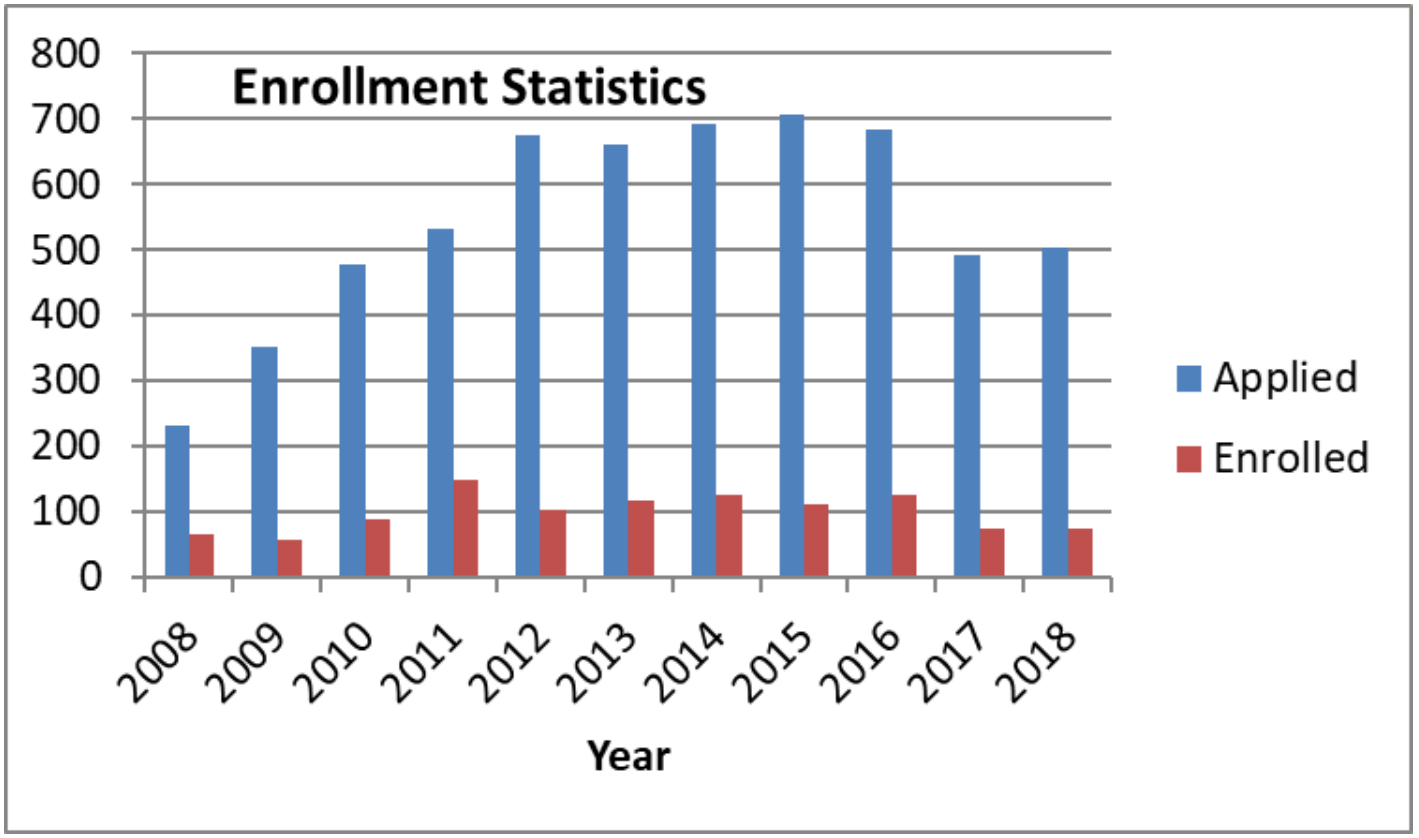
ARCS Fellowship



NSF Graduate Research Fellowship

Qualcomm Innovation Fellowship

ENTS Program Statistics: Enrollment



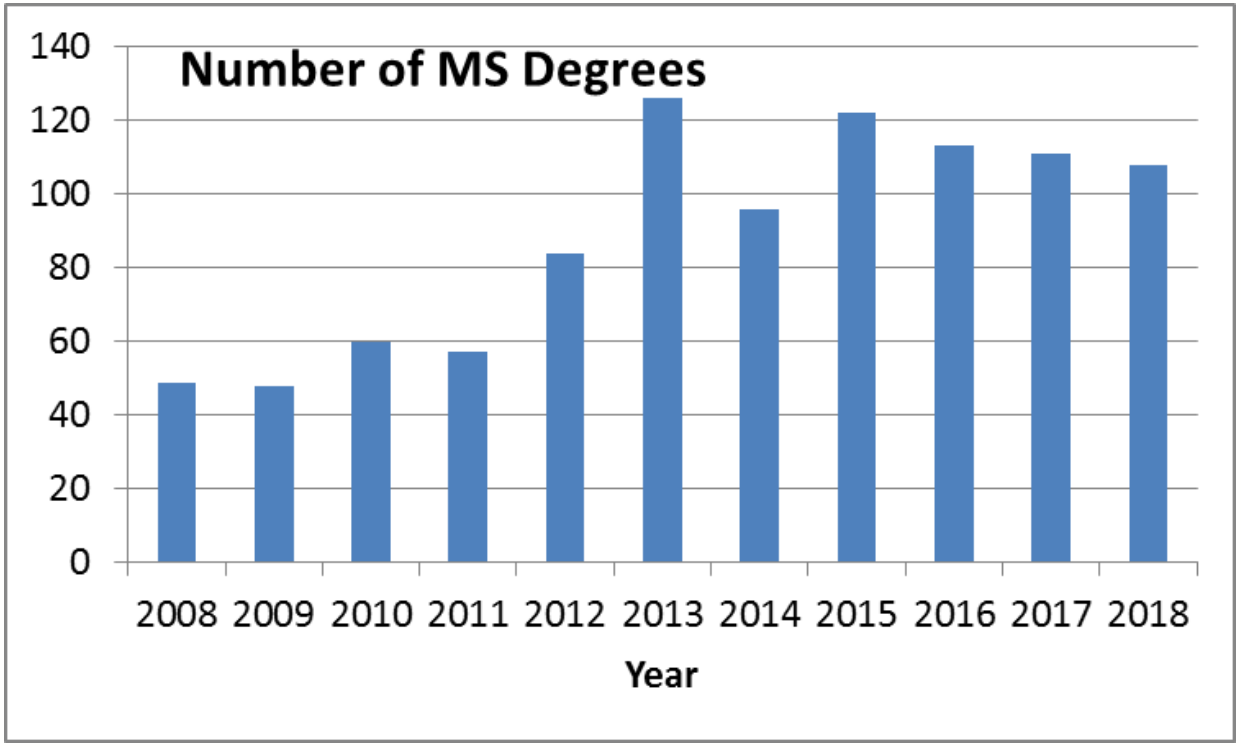
Fall 2018:
188 direct applicants.

Fall 2017:
231 direct applicants.

Fall 2016:
344 direct applicants.

Enrollment in 2018: Spring: 9, Fall: 66, Total: 75

ENTS Program Statistics: MS Degrees



Recent graduation stats:

Spring 2017:
- **100** MS degrees awarded

Summer 2017:
- **0** MS degrees awarded

Fall 2017:
- **11** MS degrees awarded

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

Note: Fall 2018 graduation data is not available yet.

ENTS New Initiatives

- Graduate certificate programs:
  - All proposals approved by MHEC
  - Areas: Computer Networking, Networking Software Development, Computing Systems and Wireless Communications
- New/redesigned courses:
  - ENTS622 Introduction to Digital Communication Systems
    - New lab component in the Hughes Lab using software-defined radios
  - ENTS669G Special Topics in Computing; Data Mining and Numerical Python
    - New course with "practical" machine learning and Python programming
  - ENTS669F Special Topics in Computing; Introduction to Optimization
    - New course cross-listed from ECE

ENTS Recruitment Efforts

- Marketing and Outreach
  - Carnegie digital (online) marketing campaign
    - Ran from November 2017 to February 2018
    - Display ads and retargeting, search engine advertisements (pay per click), and Facebook and Linked-In behavioral targeting
  - Virtual Info Session (Jan 22, 2018) – streamed live online
    - For prospective applicants (based on contacts gained from the online marketing campaign)
    - Welcome, program overview, and live Q&A with ENTS alumni
  - Virtual Open House (May 4, 2018) – streamed live online
    - For admitted students
    - Welcome, elective showcase, and live Q&A with current students
- Referrals
  - ECE Referrals: 129 applicants
  - CS Referrals: 165 applicants

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

- Degree requirements:
  - 30 credits total
    - 6 core courses
    - 4 elective courses
    - Scholarly paper

MS in Machine Learning Program

- 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: Initial set
  - 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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