Computer Science Advisory Board Meeting
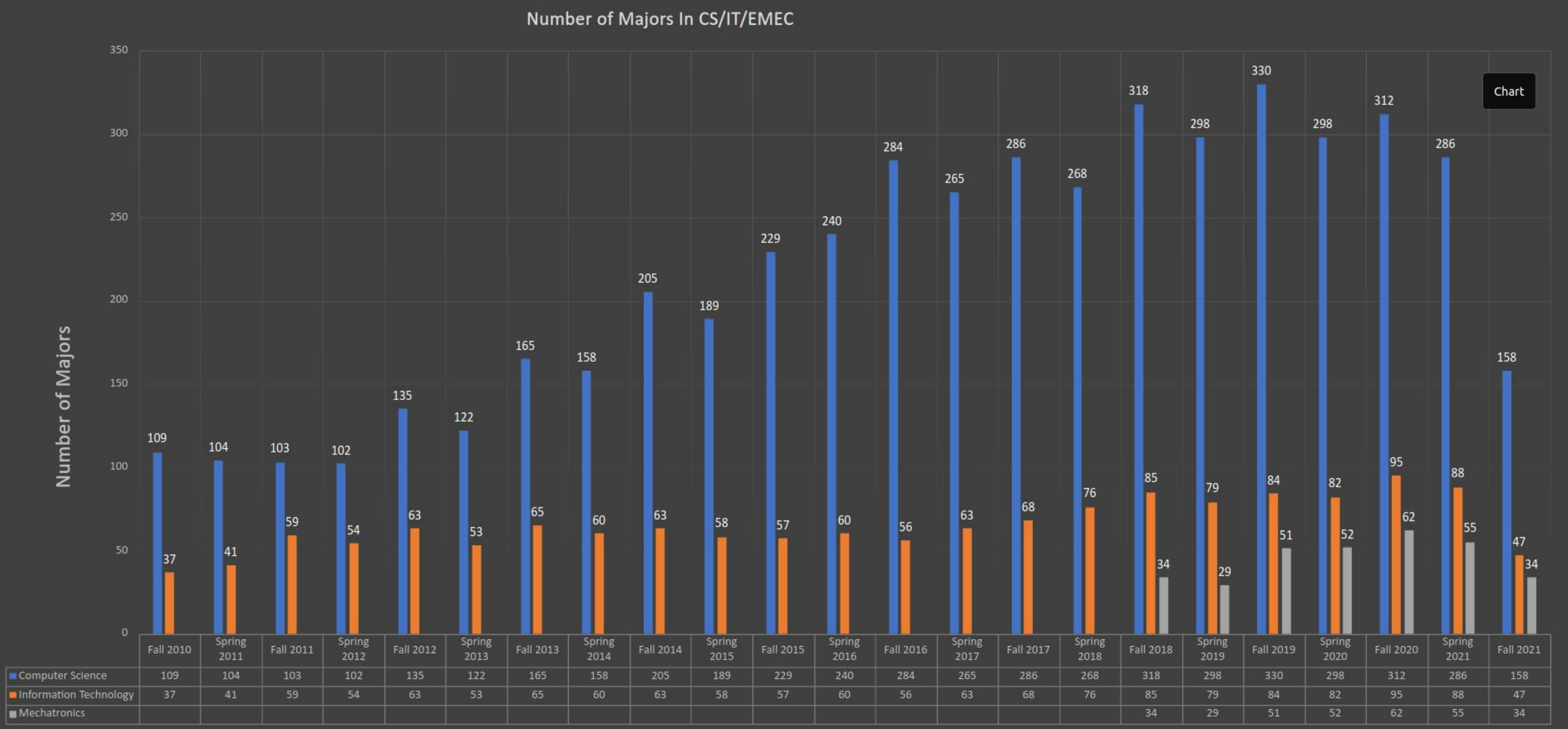
Spring 2021

Michael Soltys, May 7, 2021

Agenda
Comp Sci Advisory Board Meeting May 7, 2021, 1:00-2:00

1. Introduction by Chris Meissner (5min)

2. Update on department by Michael Soltys

3. Questions and transition to Capstone Showcase
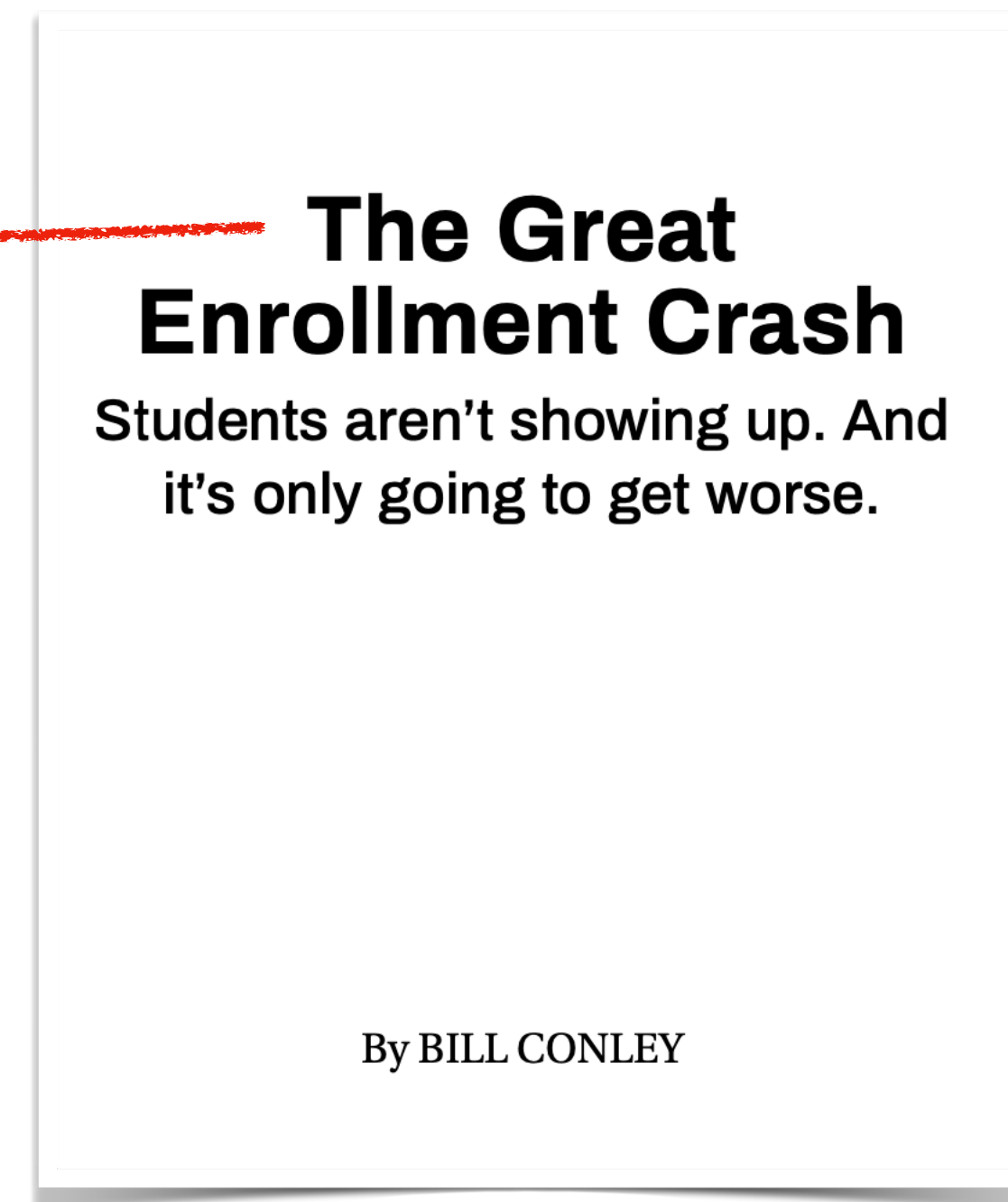
Good news and Bad news

Number of Majors In CS/IT/EMEC

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021
Computer Science	109	104	103	102	135	122	165	158	205	189	229	240	284	265	286	268	318	298	330	298	312	286	158
Information Technology	37	41	59	54	63	53	65	60	63	58	57	60	56	63	68	76	85	79	84	82	95	88	47
Mechatronics																	34	29	51	52	62	55	34

	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021
CS	320	300	331	298	316	286	158
IT	85	79	84	82	95	88	47
EMEC	34	29	51	52	63	55	34

Why?
Low enrollment

- Of course the effects of COVID

- A profound demographic dip

- Community Colleges are taking more students

- National conversation about value of higher education especially relative to its cost
(CSUCI is very affordable)

- We do what we can: e.g., EMEC faculty called all the EMEC applicants. We created a ML app for help in enrollment.

The Great Enrollment Crash

Students aren't showing up. And it's only going to get worse.

By BILL CONLEY

Philanthropy

- Southern California Edison - Mechatronic Scholarships

- Gene Haas Foundation - Mechatronic and Computer Science Scholarships for students interested in machine design, machine interface or robotics in a manufacturing setting

- B. Johnson Engineering Scholarship Endowment - Mechatronic Engineering

- Meissner Filtration - department program support

Departmental activity
Jason Isaacs: Conference CSUCS

- Helped organize peer reviewed conference for CSU Computer Science students:
  http://cscsu.org

  - Deep Reinforcement Learning for Autonomous Search, Andrew T. Herdering, Hugo F. Quintero, Sara E. Centeno, Mishell L. Beylik, Jason T. Isaacs

  - Playing Pokémon Red with Reinforcement Learning, Joseph Flaherty, Aaron Jimenez, and Bahareh Abbasi

Departmental activity
Bahareh Abbasi publications and grants

- 30th IEEE International Conference on Robot and Human Interactive Communication (ROMAN 2021) with collaborators from UIC, titled "Physical Action Primitives for Collaborative Decision Making in Human-Human Manipulation"

- NSF grant application; and an accepted CIS grant in conjunction with our Health Department

Departmental activity
Scott Feister

- campus-wide data science "Plot-A-Thon" event, in collaboration with the Trade Desk. This was a single-day student hack-a-thon in February where students were exposed to data science professionals and developed plots on a dataset using Python, R, Excel, and Tableau.
News Release: https://www.csuci.edu/news/releases/2021-plot-a-thon.htm

- collaboration with the high intensity laser team at Lawrence Livermore National Laboratory. Develop embedded systems for data acquisition and mechatronics control of scientific instruments in real-world scientific research laboratories.

Departmental activity
Eric Kaltman

- Three publications:

  - "The Game I Mean: Game Reference, Citation, and Authoritative Access," Game Studies. 2021.

  - "An Archive of Interfaces: Exploring the Potential of Emulation for Software Research, Pedagogy, and Design," The 24th ACM Conference on Computer-Supported Cooperative Work and Social Computing. 2021

  - "From the Presupposition of DOOM to the Manifestation of Code," Digital Humanities Quarterly. 15(1). 2021.

- invited to chat with Library of Congress media archivists regarding the use of Emulation as a Service for archival software recovery; invited to a panel discussion on emulation methodologies hosted by SPN; managed to get CI's EaaS node setup and connected to the national network.

- Working on revamping our Games Minor

Departmental activity
Reza Abdolee

- Presented the following paper in 16th Wireless On-demand Network systems and Services Conference: "Traffic-Based Adjustable Discontinuous Reception Mechanism with Bounded Delay"

- Participated in California Cybersecurity Taskforce Project and contributed in the writing of the education grant proposal lead by the cybersecurity task force.

- Prepared a cybersecurity education plan for our program by considering the skills and expertise needed in the industry

- Initiated changes in our cybersecurity education by adding hands-on lab to our cybersecurity course (COMP-424) and updating the course curriculum.

- Worked with Keysight Company to equip our cybersecurity lab by bringing IoT and measurement devices to teach hands-on cybersecurity skills involving IoT and embedded systems.

Departmental activity
Brian Thoms

- Coauthored 1 Peer-Reviewed Journal Publication and 3 Conference Publications

- Will be chair during fall term, as Jason Isaacs, Sami Al-Salman and I will be on a sabbatical break

Departmental activity
Vida Vakilian

- Submission of a research proposal to Department of Defense (DoD) on Ultra-Reliable Low-Latency Millimeter-Wave Communication Systems ($490,851).

- Receiving an acceptance from IEEE International Conference on Autonomous Robot Systems and Competitions (ICARSC) for a paper with title of "Congestion Strategies for Clustered Central Place Foraging". This publication was based on the results of one of our graduate student's thesis.

- Give a talk on "Mechatronics Engineering now and in the future" for Society of American Military Engineers on Virtual Celebration of National Engineering Week.

- Host a live, interactive Zoom seminar on the next generation of industrial automation, "How will 6G transform Industrial Robotics?"
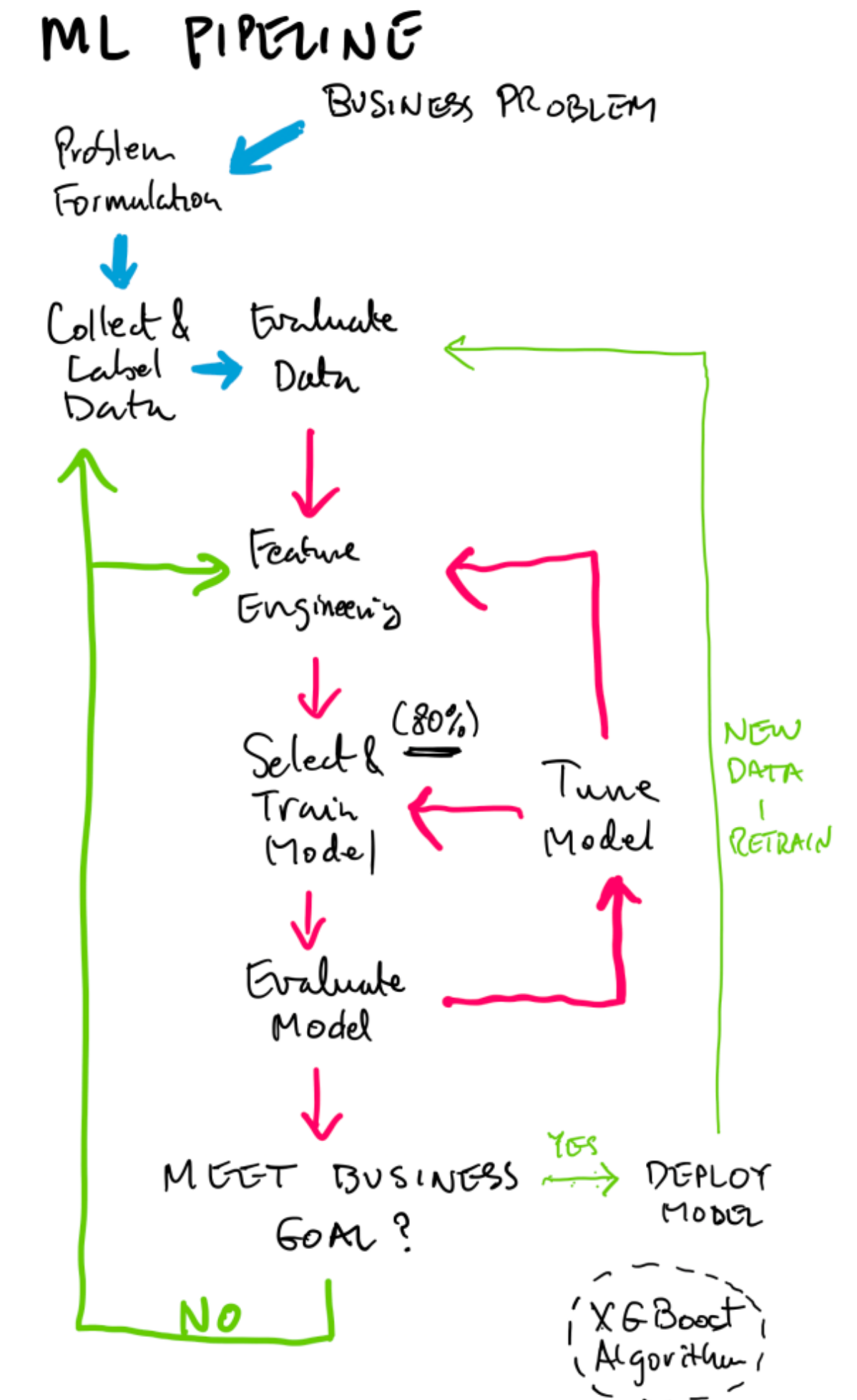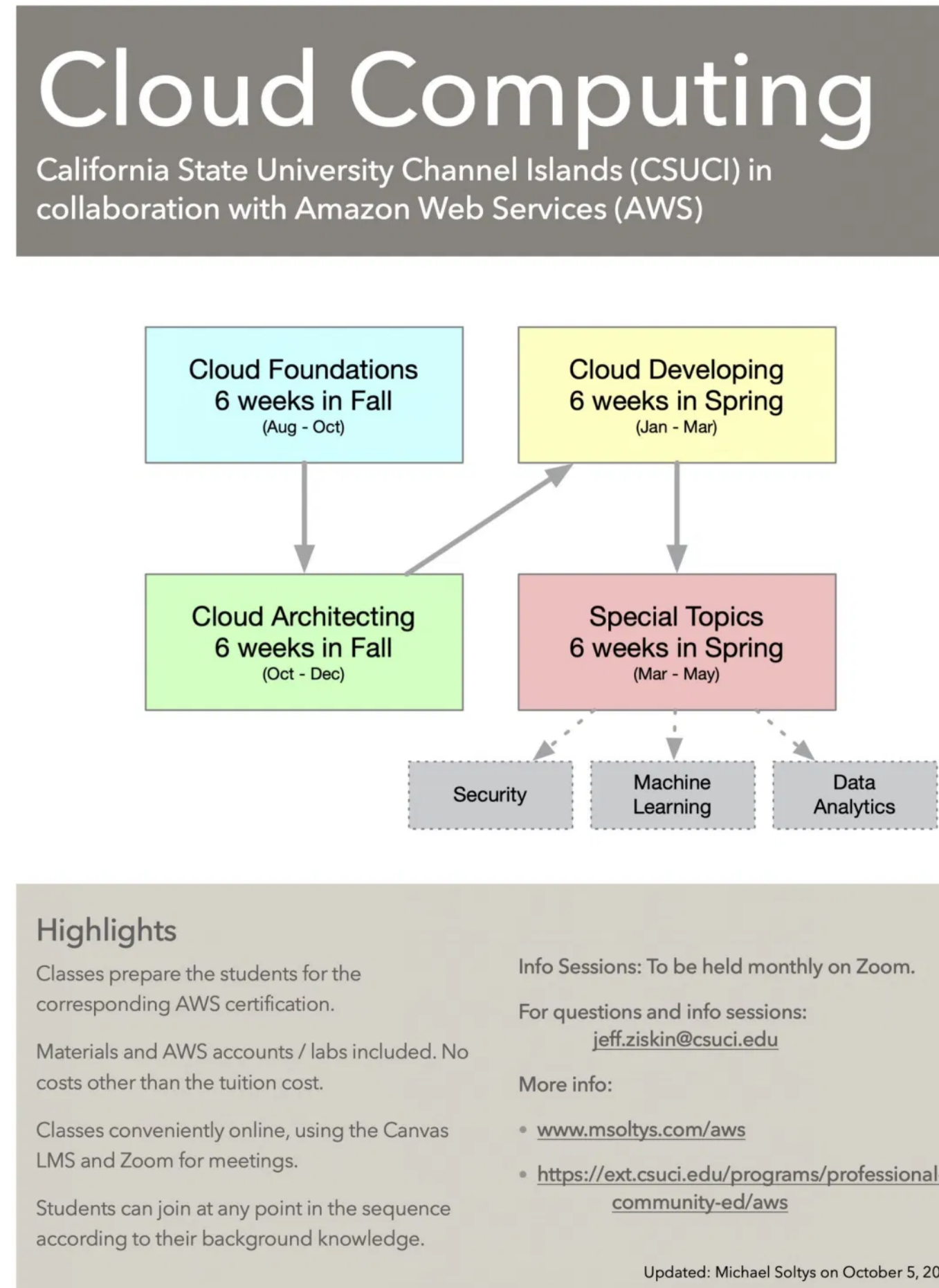
Departmental activity
Michael Soltys

- 4 papers on "Cloudifying" the curriculum; all four papers will appear at the Frontiers in Engineering 2021 conference in the fall

- Two papers at KES2020, one with Zane Gittins on Malware, and the other with Sam Decanio on the Voyager HTTF tool.

- Two papers written during the 2020 ONR, one on a collaboration in producing Cybersecurity graduate; the other on correctness of Machine Learning procedures.

- Paper on using ML in enrollment and includes a SageMaker application.

- Taught first Cycle of AWS certification classes (4 courses) to working software engineers; promotion, including 6 radio talks on cloud computing; 4 certifications
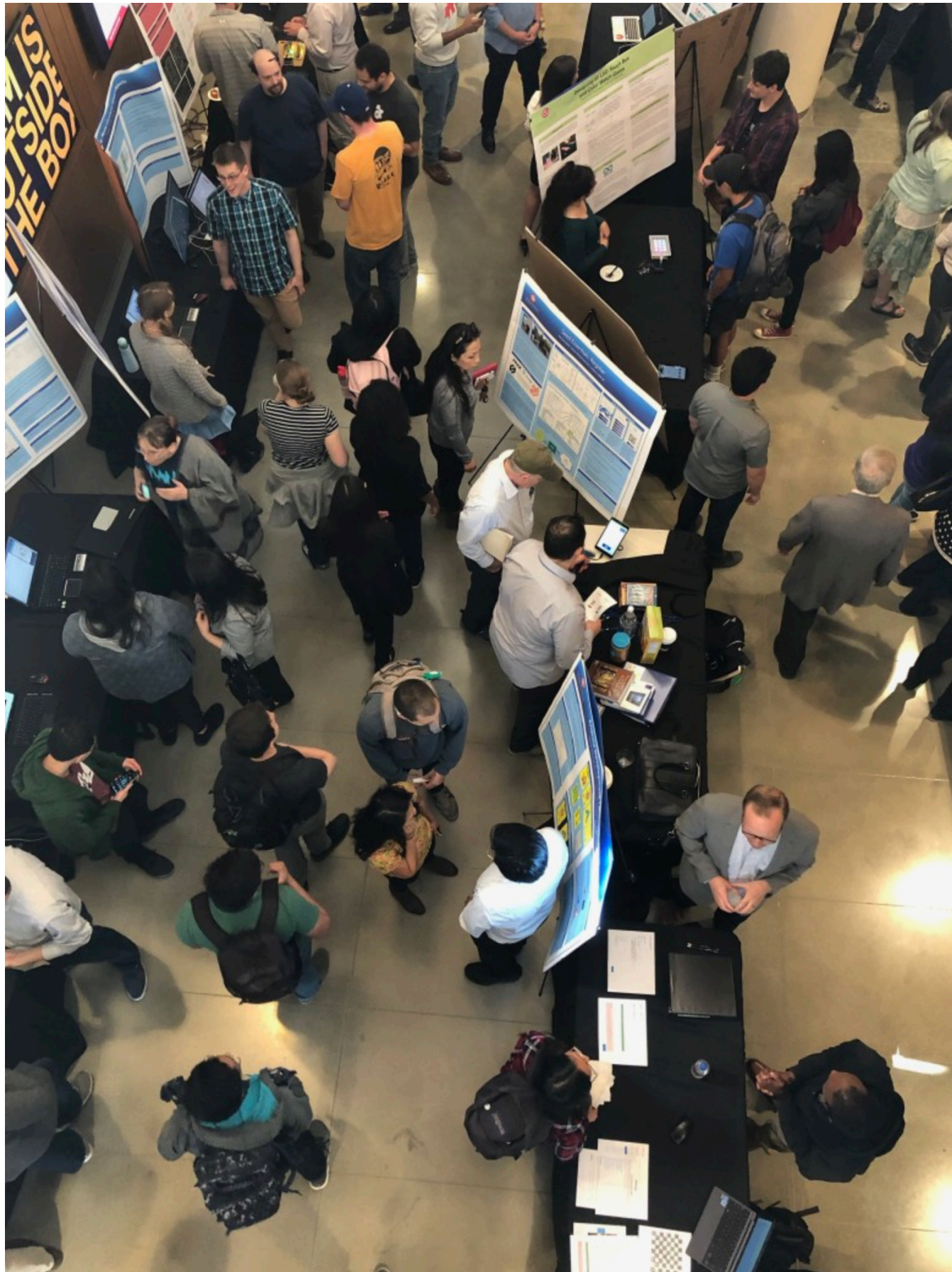
AWS
Partnership

- https://prof.msoltys.com/?p=5766 (Cloud training)

- https://prof.msoltys.com/?p=5751 (Machine Learning Pilot)

Cloud Computing

California State University Channel Islands (CSUCI) in collaboration with Amazon Web Services (AWS)

Cloud Foundations
6 weeks in Fall
(Aug - Oct)

Cloud Developing
6 weeks in Spring
(Jan - Mar)

Cloud Architecting
6 weeks in Fall
(Oct - Dec)

Special Topics
6 weeks in Spring
(Mar - May)

Security   Machine Learning   Data Analytics

Highlights

Classes prepare the students for the corresponding AWS certification.

Materials and AWS accounts / labs included. No costs other than the tuition cost.

Classes conveniently online, using the Canvas LMS and Zoom for meetings.

Students can join at any point in the sequence according to their background knowledge.

Info Sessions: To be held monthly on Zoom.

For questions and info sessions:
jeff.ziskin@csuci.edu

More info:
- www.msoltys.com/aws
- https://ext.csuci.edu/programs/professional-community-ed/aws

Updated: Michael Soltys on October 5, 2020

ML PIPELINE
BUSINESS PROBLEM
Problem Formulation
Collect & Label Data
Evaluate Data
Feature Engineering
Select & Train Model (80%)
Tune Model
NEW DATA / RETRAIN
Evaluate Model
MEET BUSINESS GOAL?
YES → DEPLOY MODEL
NO
XG Boost Algorithm

Conclusion - Virtual Capstone Showcase

Discussion and links to capstones:

prof.msoltys.com/?p=6145