conference.program

11.1.16

9am

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| Title | Presenter Notes |

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| **Mezzanine Lounge** | with Prof. Lou Braida |
| How Accurate is a Drug Test? | Maria Messick 0 1 \* |
| Depth First Search: Using Computers to Intelligently Solve Mazes | Aritro Biswas 1 1 \* |
| Origami Folding Algorithms: Unveiling the Mystery Behind Folded Structures | Lisa Deng 1 \* |
| Title | Elizabeth Eastman 1 \* |
| Title | Hunter Gatewood 0 1 \* |
| **Twenty Chimneys** | with Emily Zhang |
| Let’s Make Things Spin! How Electric Motors Work | Priya Kikani 01 \* |
| Title | Nicholas Matthews 01 \* |
| Callbacks in Computer Science: Stop Waiting Around! | Sean Soni 1 \* |
| Title | Alexander Smith 07 \* |
| Title | Christopher Desnoyers 07 \* |

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| **PDR 1** | with Professor Leslie Kolodziejski | |
| Title | | Michelle Lauer 1 9 \* | |
| Title | | Sharon Kipruto 9 \* | |
| Title | | Rachel Lathe 9 \* | |
| How the Internet Works | | Ruth Park 9 \* | |
| How do we convey the glass without touching surface? | | Taeyoung Yoon 9 \* | |

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| **Lobdell Balcony** | with Remi Mirkat | |
| Dealing with a heap of money like a computer scientist | John La 8 < | |
| How to Win at Poker: Counting Strategies | | Suri Bandler 7 < |
| How to get Obama’s email | Luana Lopes Lara 9 \* | |
| How Hacking a Computer is Just Like Robbing a House | Andrew Montanez 07 \* | |

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| **Coffeehouse Lounge** | with Professor Collin Stultz and Phoebe Tse | | |
| The Universe: How we got to Now | | Christian Cardozo Aviles 17 \* | |
| Copy/Paste, Counterpoint, and Classical Music | | | Alexander Campillanos 17 \* |
| Thanks for the Memory ft. Dynamic Programming | | | Kelsey Chan 17 \* |
| Title | | | Dayanna Espinoza-Silva 17 \* |
| Onion Routing: Maintaining Anonymity on the Internet | | | Henry Tareque 17 \* |

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| **PDR 2** | with Professor Dirk Englund | | |
| How to Bet on Anything | | Jerry Wu 28 \* | |
| The Physics of the MOSFET | | | Joshua Sloane 27 \* |
| Title | | | Aasavari Phanse 27 \* |
| RSA Encryption (Or how to pass secret notes in class!) | | | Abigail Russell 28 \* |
| Title | | | Evan Crane 027 \* |

10am

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| **Coffeehouse Lounge** | with Professor Collin Stultz |
| Strobe Photography: Capturing the Instantaneous | David Houle 18 \* |
| Organizing Your Music Library | Ziad Baaklini 18 \* |
| Title | Connie Siu 18 \* |
| Title | Zygimantas Straznickas 18 \* |
| Evolution of Encryption | Ryan Stuntz 18 \* |

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| **Lobdell Balcony** | with Phoebe Tse and Remi Mirkat |
| Title | Anvita Pandit 18 \* |
| Things we know we can’t know | Trevor Henderson 08 \* |
| How to Create Panoramic Images Using Computer Vision | Jose Zuniga 18 \* |
| WARNING! Race Conditions May Result in Unpredictable Programs | Nicole OBrien 10 \* |
| How Your Favorite iPhone and Web Apps are Built | Kevin Shum 10 \* |
| Title | Brindha Kannan 18 \* |

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| **PDR 1** | | with Professor Leslie Kolodziejski | | | |
| Space-time and Baseball | | | | | Zachary Hulcher 10 \* |
| Title | | | | | Geoffrey Gilmore 10 \* |
| Sending Secret Messages Using Simple Ciphers | | | | | Karleigh Moore 10 \* |
| Putting Everything in Order – How Computers Sort Things | | | | | Jade Philipoom 10 \* |
| Title  Letting Computers Diagnose Your Illness: Intro to Rule-Based Systems | | | | | William Roddenberry 10 \*  Laura Ting 10 \* |
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| **Mezzanine Louge** | | | with Professor Lou Braida | | |
| Title | | | Bennet Amodio 2 \* | | |
| Ray Tracing: Generating Realistic Images by Taking Photos in Reverse | | | | Nathan Gutierrez 2 \* | |
| Title | | | Carlos Henriquez 2 \* | | |
| Title | | | Lisa Zahray 2 \* | | |
| Title | | | Annie Phan 2 \* | | |
| **Twenty Chimneys** | with Emily Zhang and Robert Ramirez | | | | |
| Strobes – Making Objects Stand Still | | | Elaine Lin 2 < | | |
| How your computer gets Google’s IP Address | | | Zachery Miranda 2 \* | | |
| Title | | | Will Reyes 2 \* | | |
| Title | | | Justine Jang 22 \* | | |
| Title | | | | | John Stephens 22 \* |
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| **PDR 2** | | | | | with Professor Tomas Palacios |
| How to Win a Game Show | | | | | Arezu Esmaili 22 \* |
| Title | | | | | Garron Charles 22 \* |
| Title  Title  Finding the Signal Recipe: The Basics of the Fourier Transform  Complexity: Knowing How Fast Your Code Is…. Before You Write It | | | | | Anastasia Dosca 22 \*  Theron Nipson 22 \*  Sienna Ramos 22 \*  Jose Salazar 22 \* |

11am

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| **PDR 2** | with Professor Tomas Palacios | |
| Title | | Jacqueline Liu 23 \* |
| How does it feel to be in charge of an airline? Solving airline scheduling with flow networks | | Suyash Fulay 23 \* |
| BitHacks: Tweaking the Nuts & Bolts of a Computer Program | | Isaac Garza 23 \* |
| Title | | Selina Leung 23 \* |
| Shining a Light on Solar Panels  Title | | Elizabeth Schell 23 \*  Katie Sedlar 23 \* |

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| **PDR 1** | with Professor Leslie Kolodziejski | |
| The Tower of Hanoi Puzzle | | Nadia Lucas 11 \* |
| Title | | Kathy Camenzind 11 \* |
| How DNA Sequencing Works | | Isabel Chien 11 \* |
| From Points to Curves: How Computers Draw Art | | Catherine Li 11 \* |
| Title | | Dora Tzeng 11 \* |

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| **Lobdell Balcony** | with Phoebe Tse and Emily Zhang | | | |
| Title | | | | Wei Low 23 \* |
| Drawing with Bezier Curves: The Math Behind Pixar | | | | Christina Sun 23 \* |
| How to Communicate Quickly and Efficiently: For top secret missions or just loading Facebook | | | | Marisa Rozzi 11 \* |
| Title | | | | Vickie Ye 11 \* |
| Git Version Control  Title | | | | Megan Gebhard 7 \*  David Mayo 28 \* |
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| **Mezzanine Lounge** | | with Professor Lou Braida | | |
| Title | | Yanqi Chen 3 \* | | |
| Title | | Xuan Bui 3 \* | | |
| How to Make a Pixar Movie | | Evan Denmark 3 \* | | |
| Onion Routing: How to Cleverly Communicate Covertly | | Michael Feffer 3 \* | | |
| Classification Trees: WHAT ARE THOOOSE? | | Daniel Lerner 3 \* | | |

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| **PDR 4** | with Jason Tong and Yola Katsargyri |
| Subtle Bragging: Multi-party Computation and How it Works | Daniel Shaar 3 \* |
| How to Simulate the Universe | Ethan Witt 3 \* |
| Title | Brian Saavedra 3 \* |
| Minimax: How Computers Beat Grandmasters at Chess | David Zheng 13 \* |
| Using Bayes’ Rule to Model How Humans and Robots Think | Madeleine Severance 13 \* |

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| **Twenty Chimneys** | with Professor Joe Steinmeyer |
| Title | Mubarik Mohamoud 13 \* |
| Title | Corey Cleveland 13 \* |
| Virtual Memory: Stop Apps from FIghting | Julian Delerme 13 \* |
| Network Centralities: Who is important? | Alex Luh 13 \* |
| Fiber Optics: Connecting the World with Light  Title | Alan Medina 13 \*  Sudhanshu Mishra 13 \* |

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| **Coffeehouse Lounge** | with Professor Collin Stultz |
| Title | David Gomez 19 \* |
| Title | Aneesh Agrawal 19 \* |
| The Future of Wireless Charging | Oscar Guevara 19 \* |
| Strategies for Two Player Games | Steven Hao 19 \* |
| How to Share Nuclear Launch Codes (and Other Secrets) | Linda Liu 19 \* |
| Title | Julia Wu 19 \*  \* |

12pm

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| **Coffeehouse Lounge** | with Professor Collin Stultz | |
| Title | Christina Martinez-Acha 20 \* | |
| Title | | Rita Ainane 20 \* |
| The Vector Space Model (Or What You Should Watch Next on Netflix) | | Rebekah Bell 20 \* |
| Singular Value Decomposition: Capturing the essence of a picture | Osmany Corteguera 20 \* | |
| Title | | Chandani Doshi 20 \* |
| Simpson’s Paradox: Who gets more dates: Me or Brad Pitt? | | Fernando Varela 20 \* |

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| **PDR 1** | with Robert Ramirez and Emily Zhang | |
| Git-ting Smart With Your Files: How to Rage At Your Computer Just A Little Less | | Gregory Young 08 < |
| Title | | Kevin Ng 24 \* |
| Title | | Andrew Reilley 24 \* |
| Title | | Jessica Fang 19 \* |
| Title | | Mesert Kebed 08 > |

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| **Twenty Chimneys** | with Professor Joe Steinmeyer | |
| Saving Society with Semaphores | | Anne Kelley0 14 \* |
| Title | | Samantha Fierro 014 \* |
| The Monty Hall Problem | | Cavin Mozarmi0 14 \* |
| Title | | Nischal Nadhamuni0 14 \* |
| Title | | Narindra Peaks 14 \* |
| The Pigeonhole Principle and Beyond: Proofs About Socks, Oranges, and Hair | | Elysa Kohrs 14 \* |

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| **PDR 4** | with Yola Katsargyri and Jason Tong |
| Title | Michael Shum 04 \* |
| Title | John Mikhail 04 \* |
| How to Hide Secrets in Plain Sight | Nchinda Nchinda 04 \* |
| How Video Game AI Works | Raoul Khouri 014 \* |
| Title | George Liang 14 \* |

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| **Mezzanine Lounge** | with Professor Lou Braida |
| The Pirate Game: Distributing Treasure | Stuart Finney 4 \* |
| Title | Travis Herbanek 4 \* |
| Title | Alex Huang 4 \* |
| Title | Alex Latham 14 \* |
| Title | Yuge Ji 14 > |

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| **PDR 2** | with Professor Tomas Palacios |
| Title | Angus MacMullen 24 \* |
| Keeping Track of a Computer’s Kids | Famien Koko 24 \* |
| Title | Cheuk Lee 24 \* |
| Title | Bristy Sikder 24 \* |
| Error Correcting Codes: Conveying Info with Greater Accuracy | Kevin Yang 24 \* |
| Title | Sagnik Saha 24 \* |

1pm

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| **Mezzanine Lounge** | with Professor Dirk Englund | |
| Editing DNA with CRISPR Scissors | | Helen Abadiotakis 25 \* |
| Title | | Kai Aichholz 25 \* |
| Shortest-Path Finding | | Benjamin Lin 27 \* |
| Title | | Tomas Calderon 28 \* |
| Grocery Shopping: The Bin-Packing Problem | | Kai Xiao 28 \* |
| Title | | Alfredo Yanez 28 > |

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| **PDR 4** | with Yola Katsargyri |
| Title | Kayode Ezike 25 \* |
| Title | Brandon Sanchez 025 \* |
| Making Multiplication Faster with the Karatsuba Algorithm | Jennifer Tylock 25 \* |
| Using Your Cache Wisely | Douglas Kogut 025 \* |
| Why our planet is doomed: A look into Game Theory | Julian Ranz 25 \* |
| Magnetic Circuits | Tianye Chen 25 \* |

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| **PDR 2** | with Tomas Palacios |
| Bitcoin: Magical Digital Money | Natalie Coleman 21 \* |
| Title | Joren Lauwers 021 \* |
| Title | Gustavo Montalvo 021 \* |
| Title | Chris Womack 21 \* |
| First-Order Circuit Filters | Juan De Jesus 21 \* |

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| **Coffeehouse Lounge** | with Professor Kimberle Koile |
| Title | Phillip Cherner 5 \* |
| Title | Douglas Chambers 0 5 \* |
| Title | Israel Donato-Ridgley 5 \* |
| Title | Jakob Weisblat 0 8 \* |
| Hash Functions: Speedy Searches for Quicker Computers | Harrison Okun 5 \* |

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| **PDR 3** | with Sarah Tortorici and Robert Ramirez | |
| Efficiently Find That Thing You’re Looking For | | Katie Marlowe 5 \* |
| How to get from Stanford to MIT as quickly as possible | | Rachel Rotteveel 0 5 \* |
| Title | | Daniel Solomon 5 \* |
| Particle Systems: Wow, that Water Looks Real! | | Reece Tamashiro 0 5 \* |
| Time Travel with Special Relativity | | David Campeau 21 \* |
| Adversarial Search: How Computers Play Games | | Jeremy Wright 21 \* |

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| **Twenty Chimneys** | with Professor Joe Steinmeyer |
| How Brain Cells Communicate – Why we laugh, learn, and love | Runpeng Liu 16 < |
| Title | Banti Gheneti 15 \* |
| Title | Lotta Blumberg 015 \* |
| How to Share a Secret | Brandon Carter 15 \* |
| Image Filtering Made Easy | Sara Stiklickas 015 \* |

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| **PDR 1** | with Jason Tong |
| The New Password: Your Eyes | Joanna Han 15 \* |
| Title | Nicole Lu 015 \* |
| What is Pipelining? Do Laundry Faster and Make Netflix Load More Quickly | Lorenzo Vigano 15 \* |
| Title | Pravina Samaratunga 016 \* |
| Title | Dang Pham 16 \* |

2pm

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| **Mezzanine Lounge** | with Professor Dirk Englund | |
| Title | | Tyler Finkelstein 26 \* |
| Understand and Fix Your Slow Wifi | | Reo Baird 26 \* |
| Title | | William Navarre 28 \* |
| Title | | Adarsh Jeewajee 27 \* |
| Title | | Boton Ma 27 > |

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| **PDR 4** | with Yola Katsargyri |
| Long Distance Radio Communications or How Do Our Satellites Phone Home? | Alex Sloboda 26 \* |
| Collect Data Lazily, Get Away With It | Descartes Holland 026 \* |
| Tell a Lie Often Enough… | Arman Rahman 26 \* |
| Title | Tim Zhong 026 \* |
| Parkinson’s Evil Twin | Michael Castano 26 \* |

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| **Twenty Chimneys** | with Professor Leslie Kolodziejski | |
| Title | | Ismael Gomez 12 \* |
| Title | | Diego Cornejo 012 \* |
| Number of Paths on the NYC Grid | | Amber Guo 12 \* |
| How to be a Better Decision Maker | | Willow Jarvis 012 \* |
| Understanding Circuits and Why Electrical Plugs Have Three Prongs | | Michelle Qiu 12 \* |

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| **PDR 2** | with Phoebe Tse |
| How to be an Efficient Doctor – The Viterbi Algorithm | Aofei Liu 28 < |
| Title | Joy Yu 012 \* |
| Title | Jonatan Yucra Rodriguez 12 \* |
| Title | Eric Ponce 027 > |
| Title | Kenny Gea 27 > |

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| **Coffeehouse Lounge** | with Professor Kimberle Koile | |
| Drawing Lines for Fun, Profit, and Classification (aka the joys of linear separators | | Lei Ding 7 \* |
| Finding a moment in a videostack | | Ali-Amir Aldan 0 6 \* |
| Title | | Nikita Kodali 8 \* |
| Title | | Vincent Anioke 0 7 > |
| How to Make Your Computer Play (and win!) the Game of 20 Questions | | Spencer Bard 7 > |
| Title | | Damien Martin 8 > |

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| **PDR 3** | with Sarah Tortorici |
| Title | Keith Galli 6 \* |
| Mr. Steal Your Prom Date | Sravya Bhamidipati 0 6 \* |
| How to be a Particularly Good Finder | Jackie Liu 6 \* |
| Title | Crystal Pan 0 6 \* |
| Title | Michael Wallace 6 \* |

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| **PDR 1** | with Jason Tong |
| How to Share Secrets With Your Friends | Edward Park 16 < |
| Title | Alexander List 016 < |
| Title | Leopoldo Calderas 16 \* |
| Traveling for Cheap: How to Find the Cheapest Flight Paths Around the World! | Danielle Penney 016 \* |
| Title | Gregory Hui 16 \* |

Special thanks to:

Katherine Touafek (School to Careers Partners)

Dave Medvitz (Pingree)  
Benadette Manning (Fenway)

Michele Goe (O’Bryant)  
Bob Hall (Newman)  
Jason Tong (MIT)

my.notes

Dear High School Student,

We hope you enjoyed your visit to MIT! We’d like some feedback to improve the experience for future conference attendees like yourselves. Please answer all of the following questions:

**About You** Please circle the best answer(s):

I am a high school: { freshman sophomore junior senior } I am: { male female }

I’ve taken: { AP math AP chem AP physics AP bio programming }

In general, I found the talks { too hard just right too easy } to understand

In general, I understood { all most some a few none } of them.

I am considering a technical career (in science, engineering, math, technology, etc) { yes no }

**About Your Day**

For each hour, write the name of the room moderator, and the title/presenter of the best talk of that hour.

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| --- | --- | --- |
| **Timeslot** | **Room** | **Best Presenter in Room during this Timeslot** |
| 9:00 am – 10:00 am |  |  |
| 10:00 am – 11:00 am |  |  |
| 11:00 am – 12:00 pm |  |  |
| 12:00 pm – 1:00 pm  1:00pm – 2:00pm |  |  |

What did you learn or like about it? (You can use the back of this sheet!)

Any feedback you want to relay to any of the presentations you heard? (You can use the back of this sheet!)

Turn in this form for a piece of candy!