conference.program

11.1.16

9am

Title	Presenter	Notes	
Mezzanine Lounge	with Prof. Lou Braida		
How Accurate is a Drug Test?	Maria Messick	1	*
Depth First Search: Using Computers to Intelligently Solve Mazes	Aritro Biswas	1	
Origami Folding Algorithms: Unveiling the Mystery Behind Folded Structures	Lisa Deng	1	
Prisoner's Dilemma: Beating out your competition	Elizabeth Eastman	1	
Counting Cards: How Google Analyzes a Billion People's Data	Hunter Gatewood	1	
Twenty Chimneys	with Emily Zhang		
Let's Make Things Spin! How Electric Motors Work	Priya Kikani	1	
(no title)	Nicholas Matthews	1	
Callbacks in Computer Science: Stop Waiting Around!	Sean Soni	1	
(no title)	Alexander Smith	7	
(no title)	Christopher Desnoyers	7	
PDR 1	with Professor Leslie Kolodziejski		
PageRank: How Important is Your Website?	Michelle Lauer	9	*
Optimizing an algorithm (Fibonacci)	Sharon Kipruto	9	
Operating Systems	Rachel Lathe	9	
How the Internet Works	Ruth Park	9	
How do we convey the glass without touching surface?	Taeyoung Yoon	9	
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	7	
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	
How does the Internet seem to always keep you online?	Dayanna Espinoza-Silva	17	*
Onion Routing: Maintaining Anonymity on the Internet	Henry Tareque	17	
PDR 2	with Professor Dirk Englund		
How to Bet on Anything	Jerry Wu	28	*
The Physics of the MOSFET	Joshua Sloane	27	
Introduction to K-Means Clustering	Aasavari Phanse	27	
RSA Encryption (Or how to pass secret notes in class!)	Abigail Russell	28	
Trains and Tumors: Understanding the Genes that Cause Cancer	Evan Crane	27	

10am

Title	Presenter	Notes	
Coffeehouse Lounge	with Professor Collin Stultz		
Strobe Photography: Capturing the Instantaneous	David Houle	18	*
Organizing Your Music Library	Ziad Baaklini	18	
How to Get Through a Corn Maze	Connie Siu	18	
How Computers Learn Words Without Being Taught	Zygimantas Straznickas	18	
Evolution of Encryption	Ryan Stuntz	18	
Lobdell Balcony	with Phoebe Tse and Remi Mirkat		
Bitcoin Trading with Bayesian Regression	Anvita Pandit	18	*
Things we know we can't know	Trevor Henderson	8	
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	
Matter and Space	Brindha Kannan	18	
PDR 1	with Professor Leslie Kolodziejski		
Space-time and Baseball	Zachary Hulcher	10	*
(no title)	Geoffrey Gilmore	10	
Sending Secret Messages Using Simple Ciphers	Karleigh Moore	10	
Putting Everything in Order – How Computers Sort Things	Jade Philipoom	10	
(no title)	William Roddenberry	10	
Letting Computers Diagnose Your Illness: Intro to Rule-Based Systems	Laura Ting	10	
Mezzanine Louge	with Professor Lou Braida		
Qubits: A New Way to Compute	Bennett Amodio	2	*
Ray Tracing: Generating Realistic Images by Taking Photos in Reverse	Nathan Gutierrez	2	
RAFT: Helping Your Mars Rovers Communicate	Carlos Henriquez	2	
Kolmogorov Complexity: Why most sequences can't be easily described	Lisa Zahray	2	
(no 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	*
How to Keep Track of Spare Parts	Will Reyes	2	
Language from a Machine's Perspective	Justine Jang	22	
How to Move Video Game Characters	John Stephens	22	
PDR 2	with Professor Tomas Palacios		
How to Win a Game Show	Arezu Esmaili	22	*
Breaking Down Words with Friends	Garron Charles	22	
Molecular self-assembly: how to easily design nanoparticles	Anastasia Dosca	22	
Network Flow: What Rivers and Baseball Playoffs Have in Common	Theron Nipson	22	
Finding the Signal Recipe: The Basics of the Fourier Transform	Sienna Ramos	22	
Complexity: Knowing How Fast Your Code Is…. Before You Write It	Jose Salazar	22	

11am

Title	Presenter	Notes	
PDR 2	with Professor Tomas Palacios		
Word Scoring: How Autocorrect Chooses the Right Match	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	
Hierarchical Modeling: How Computers Transform Bodies in Animation	Selina Leung	23	
Shining a Light on Solar Panels	Elizabeth Schell	23	
Infinite Money: The Two Envelope Paradox	Katie Sedlar	23	
PDR 1	with Professor Leslie Kolodziejski		
The Tower of Hanoi Puzzle	Nadia Lucas	11	*
(no title)	Kathy Camenzind	11	
How DNA Sequencing Works	Isabel Chien	11	
From Points to Curves: How Computers Draw Art	Catherine Li	11	
(no title)	Dora Tzeng	11	
Lobdell Balcony	with Phoebe Tse and Emily Zhang		
How Feedback Helps You Cruise Across the Country	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	
How computers see images	Vickie Ye	11	
Git Version Control	Megan Gebhard	7	
K-Means: From data to knowledge	David Mayo	28	
Mezzanine Lounge	with Professor Lou Braida		
(no title)	Yanqi Chen	3	*
LZW Compression: How to Say More with Less	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	
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	
Market Making: Easy Money?	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	
Twenty Chimneys	with Professor Joe Steinmeyer		
Simultaneous Localization and Mapping	Mubarik Mohamoud	13	*
Cyberspying without code	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	Alan Medina	13	
How to catch a Pokémon?	Sudhanshu Mishra	13	

Coffeehouse Lounge with Professor Collin Stultz

Dealing with a Noisy World: Fourier Transforms and Filters	David Gomez	19	*
Let it Crash: Handling the unpredictable in computer programs	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	
(no title)	Julia Wu	19	

12pm

Title	Presenter	Notes	

Coffeehouse Lounge with Professor Collin Stultz

(no title)	Christina Martinez-Acha	20	*
How to Make Your Car Fast and Furious	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	
Understanding Radix Sort	Chandani Doshi	20	
Simpson's Paradox: Who gets more dates: Me or Brad Pitt?	Fernando Varela	20	

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	8	<
Size Matters	Kevin Ng	24	*
Mathematical Multitasking: In Pursuit of Better Graphics	Andrew Reilley	24	
Conditional Probability and the Monty Hall Problem	Jessica Fang	19	
Prisoner's Dilemma: Why you should never trust your partner	Mesert Kebed	8	>

Twenty Chimneys with Professor Joe Steinmeyer

Saving Society with Semaphores	Anne Kelley	14	*
(no title)	Samantha Fierro	14	
The Monty Hall Problem	Cavin Mozarmi	14	
(no title)	Nischal Nadhamuni	14	
Quantum Mechanics and You	Narindra Peaks	14	
The Pigeonhole Principle & Beyond: Proofs About Socks, Oranges, & Hair	Elysa Kohrs	14	

PDR 4 with Yola Katsargyri and Jason Tong

How Do Bots Move So Fast?	Michael Shum	4	*
Cross Site Scripting Attack	John Mikhail	4	
In Bitcoin We Trust	Nchinda Nchinda	4	
How Video Game AI Works	Raoul Khouri	14	
Handling Concurrent Conversations with CDMA	George Liang	14	

Mezzanine Lounge with Professor Lou Braida

The Pirate Game: Distributing Treasure	Stuart Finney	4	*
As Fast as a Speeding Bullet	Travis Herbanek	4	
Divide and Conquer: Solving Hard Problems by Solving Easy Ones	Alex Huang	4	
How can multiple people share the same communication medium?	Alex Latham	14	
Data Buffers, or How Your Youtube Videos Load	Yuge Ji	14	>

PDR 2	with Professor Tomas Palacios		
The FPGA: a million computers in one	Angus MacMullen	24	*
Keeping Track of a Computer's Kids	Famien Koko	24	
Count to infinity and beyond	Cheuk Lee	24	
How computers efficiently store different versions of your To-Do lists	Bristy Sikder	24	
Error Correcting Codes: Conveying Info with Greater Accuracy	Kevin Yang	24	
Scaling: Solving large problems one step at a time	Sagnik Saha	24	

1pm

Title	Presenter	Notes	
Mezzanine Lounge	with Professor Dirk Englund		
Editing DNA with CRISPR Scissors	Helen Abadiotakis	25	*
AlphaGod: How the Machine beat the Man	Kai Aichholz	25	
Shortest-Path Finding	Benjamin Lin	27	
Detecting Fake Data: Benford's Law	Tomas Calderon	28	
Grocery Shopping: The Bin-Packing Problem	Kai Xiao	28	
How to win a billion bucks	Alfredo Yanez	28	>
PDR 4	with Yola Katsargyri		
How Concepts Help Us Understand Data Storage	Kayode Ezike	25	*
Quantum Cryptography: The Unbreakable Cipher	Brandon Sanchez	25	
Making Multiplication Faster with the Karatsuba Algorithm	Jennifer Tylock	25	
Using Your Cache Wisely	Douglas Kogut	25	
Why our planet is doomed: A look into Game Theory	Julian Ranz	25	
Magnetic Circuits	Tianye Chen	25	
PDR 2	with Tomas Palacios		
Bitcoin: Magical Digital Money	Natalie Coleman	21	*
Compression: More information: less space	Joren Lauwers	21	
Binary Search Explained: As Easy as Finding Words in a Dictionary	Gustavo Montalvo	21	
AJAX: Stronger Than Long Load Times	Chris Womack	21	
First-Order Circuit Filters	Juan De Jesus	21	
Coffeehouse Lounge	with Professor Kimberle Koile		
Reverse Engineering Smoothies with Math	Phillip Cherner	5	*
How to Control Almost Anything	Douglas Chambers	5	
Why Wheels Do Strange Things On Camera	Israel Donato-Ridgley	5	
(no title)	Jakob Weisblat	8	
Hash Functions: Speedy Searches for Quicker Computers	Harrison Okun	5	
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	5	
Reduced Size Without Reduced Detail: Reduced Repitition	Daniel Solomon	5	
Particle Systems: Wow, that Water Looks Real!	Reece Tamashiro	5	
Time Travel with Special Relativity	David Campeau	21	
Adversarial Search: How Computers Play Games	Jeremy Wright	21	

Twenty Chimneys with Professor Joe Steinmeyer

How Brain Cells Communicate – Why we laugh, learn, and love	Runpeng Liu	16	<
How can we measure a car's speed using an on-board camera?	Banti Gheneti	15	*
How to Send Secret Information	Lotta Blumberg	15	
How to Share a Secret	Brandon Carter	15	
Image Filtering Made Easy	Sara Stiklickas	15	

PDR 1 with Jason Tong

The New Password: Your Eyes	Joanna Han	15	*
Is Time Actually Money?	Nicole Lu	15	
What is Pipelining? Do Laundry Faster and Make Netflix Load More Quickly	Lorenzo Vigano	15	
Computer Vision for Dummies	Pravina Samaratunga	16	
How to count Skittles quickly with MapReduce	Dang Pham	16	

2pm

Title	Presenter	Notes	

Mezzanine Lounge with Professor Dirk Englund

(no title)	Tyler Finkelstein	26	*
Understand and Fix Your Slow Wifi	Reo Baird	26	
(no title)	William Navarre	28	
Rule-based systems: A sneak peek into Artificial Intelligence	Adarsh Jeewajee	27	
Skip Lists – Express Trains for Lists	Botong Ma	27	>

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	26	
Tell a Lie Often Enough…	Arman Rahman	26	
Collisions in Storage: How Pigeonhole Principle Shows they are Inevitable	Tim Zhong	26	
Parkinson's Evil Twin	Michael Castano	26	

Twenty Chimneys with Professor Leslie Kolodziejski

(no title)	Ismael Gomez	12	*
(no title)	Diego Cornejo	12	
Number of Paths on the NYC Grid	Amber Guo	12	
How to be a Better Decision Maker	Willow Jarvis	12	
Understanding Circuits and Why Electrical Plugs Have Three Prongs	Michelle Qiu	12	

PDR 2 with Phoebe Tse

How to be an Efficient Doctor – The Viterbi Algorithm	Aofei Liu	28	<
Friendship Paradox – Why Your friends have more friends than you	Joy Yu	12	*
How to organize your fat stacks of cash really quickly using Mergesort	Jonatan Yucra Rodriguez	12	
Li Ion Battery Management Systems	Eric Ponce	27	>
Threads and Locking, Find the Race Condition Win a Prize	Kenny Gea	27	>

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	6	
Hacking Passwords 101	Nikita Kodali	8	
The Halting Problem A.K.A. Will Grandma Ever Stop Talking?	Vincent Anioke	7	>
How to Make Your Computer Play (and win!) the Game of 20 Questions	Spencer Bard	7	>
(no title)	Damien Martin	8	>

PDR 3	with Sarah Tortorici		
Winning Board Games without any Real Skill	Keith Galli	6	*
Mr. Steal Your Prom Date	Sravya Bhamidipati	6	
How to be a Particularly Good Finder	Jackie Liu	6	
How to make superbabies	Crystal Pan	6	
How to prove things certainly exist, by only proving that they probably exist	Michael Wallace	6	

PDR 1	with Jason Tong		
How to Share Secrets With Your Friends	Edward Park	16	<
Your computer perceiving the world. Why you and your computer both trip-up on the McGurk effect.	Alexander List	16	<
How Computers Remember Your Cat Videos	Leopoldo Calderas	16	*
Traveling for Cheap: How to Find the Cheapest Flight Paths Around the World!	Danielle Penney	16	
Solving mazes with Depth First Search	Gregory Hui	16	

Special thanks to:

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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.

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!