

# conference.program

3.31.16

9am

Title	Presenter	Notes
<b>PDR 1 + 2</b>	<b>with Emily Zhang</b>	
Understanding the Twin Paradox Through Relativity	Jessica Pointing	14 *
Minimax - How to Use Randomness to Make Decisions	Connor Sell	15
What Makes a Rainbow?	Ethan DiNinno	14
Quantum Mechanics: The Cool Thing To Do	Justin Xiao	14
How to Win at Strategy Games	Kevin Wen	16
<b>Twenty Chimneys</b>	<b>with Professor Muriel Medard</b>	
Reading Our Genes: Sequencing DNA	Bryce Hwang	2 *
Zoom vs Distance	Ivan-Tadeu Ferreira-Antunes-Fil	2
Lies, Damned Lies, and Bayesian Probability	Benny Zhang	2
How To Throw An Unforgettable Party	Antoine Nasr	2
The Hodgkin-Huxley Model and Making Friends	Anita Liu	2
<b>Mezzanine Lounge</b>	<b>with Francis Chen</b>	
Netflix & Filtering: Recommender Problems	Sitara Persad	17 *
Animate Cloth and Hair Realistically	Jared Counts	17
How Does Facebook Work?	Matthew Guthmiller	17
How your password stays secret (when your computer is stolen!)	Max Justicz	14
HOX Genes: How to Reverse Engineer a Dinosaur from a Chicken	Kamilla Tekiela	14
<b>Coffeehouse Lounge</b>	<b>with Alex Chumbley &amp; Dr. Jason Miller</b>	
The human ear & radio: what they have in common	Eric Fegan	11 *
Approximating Pi Using Toothpicks: The Buffon Needle Problem	Sarah Shader	11
How Devices on the Internet Communicate: Finding Paths through a Complex Network	Francesca Cicileo	12
How to Get to Space: Rockets, Engines, and Staging (no title)	Nicholas McCoy	13
	Angel Carvajal	10
<b>PDR 4</b>	<b>with Virginia Chiu</b>	
One Bit Two Bit, Red Bit Qubit: Understanding Quantum Computers	Matt Basile	12 *
Saving Time with Shortest Path Algorithms	Antonio Rivera	13
Caching Cache: A Computer's Short Term Memory	Emily Benz	13
Public-Key Cryptography: Sending Secrets the Hard Way	Kevin Kusch	12
Passing Messages Over the Internet	Asya Bergal	12

**PDR 1 + 2**

How to kick your friends off the Internet: DDoS ins and outs  
 Image processing - standing out against the background  
 How Not to Gamble  
 How to work well with friends  
 (no title)

**with Professor Tim Lu**

Everardo Rosales 3 \*  
 Rebekah Cha 3  
 Or Oppenheimer 3  
 Hongyi Shi 3  
 Alexander Stewart 3

**Twenty Chimneys**

How Light Enters the Brain  
 How Computers Talk  
 (no title)  
 (no title)  
 What is the fastest way to get around town?

**with Professor Muriel Medard**

Amanda Liu 7 \*  
 Emily Armstrong 7  
 Kevin Kwok 7  
 Kevin Li 7  
 Adrian Mora 7

**Mezzanine Lounge**

Why We Can't See Through Walls  
 Electric Motors: Turning Electricity into Motion  
 (no title)  
 Making The Unknown Known  
 Interrupts: Ways to Manage Different Hats

**with Francis Chen**

Devin Morgan 7 \*  
 Aaron Rose 7  
 Thomas Harris 17  
 Kathleen Johnson 17  
 David Kang 17

**Coffeehouse Lounge**

Keeping Things In Control  
 Where am I?: Determining Your Location with Your Phone  
 How Do Airplanes Fly?  
 Ordering Pizza and Reliable Communication  
 Fuzz Testing: Using Monkeys to Find Problems

**with Alex Chumbley**

Sara Sinback 1 \*  
 Andrew Titus 3  
 Alice Zielinski 3  
 Sen Chang 11  
 Lynda Tang 11

**PDR 4**

Making Medicine Efficiently: How to Make Cells Do What You Want  
 Predicting the Future: Markov Chains  
 Light Switches and Cheat Codes: One Step at a Time  
 Be Proactive in Dating: The Mating Algorithm Says So  
 How to Turn Atoms into an Atomic Clock

**with Professor Sangeeta Bhatia**

Camilo Ruiz 1 \*  
 John Brown 1  
 Timothy Higgins 1  
 Eric Lau 1  
 Catherine Medlock 1

**PDR 1 + 2**

Words as vectors: analogies for computers!  
 How Drugs Work: What Goes on Inside the Brain  
 Magnets, How do They Work?  
 Can you see my heart beating? Understanding Electrocardiogram  
 Cycle Detection: Am I walking in Circles?

**with Professor Tim Lu**

Hairuo Guo 4 \*  
 Jasmeet Arora 4  
 Kevin Chan 4  
 Heejo Keum 4  
 Heeyoon Kim 4

**Twenty Chimneys**

Sharing is Caring: Torrents Demystified  
 Turning the real world into 1's and 0's  
 Principles of 2D Printing  
 Tricking users into unintentionally displaying your website.  
 How to make electricity with a copper tube and a magnet

**with Professor Muriel Medard**

Julia Guo 8 \*  
 Amelia Becker 8  
 Tucker Cheyne 8  
 Will Haack 8  
 Hau Lian 8

**Mezzanine Lounge**

How the Duck does Autocorrect Work?  
 Fitting More Music on your iPod Using Fourier Transforms  
 Not All Infinities Are Created Equal  
 Hard problems are hard

**with Nick Uhlenhuth\***

Tilly Taylor 13  
 Stephanie Pavlick 8  
 Gerrod Voigt 16  
 José Velarde 16

**Coffeehouse Lounge**

Springy Thingies Turned Digital: Cloth Simulation in  
 Computer Graphics  
 How to Make a "Stupid" Proof  
 Coding and Cooking  
 Radio Jamming and how to Protect Against it  
 How Does the Internet Know You Are Human?

**with Alex Chumbley**

Emily Van Belleghem 4 \*  
 Cristina Mata 4  
 Phillip Ai 12  
 Alex Huang 11  
 Roberto Soto 12

**PDR 4**

Quantum Tunneling  
 Zero-Knowledge Proof: A Proof without The Real Proof  
 How to Hide Your Identity Online  
 PID Controllers: boat steering and moon landing  
 Bézier Curves: How a Simple Plan Wins

**with Professor Luís Velásquez-García**

Mahmoud Ghulman 10 \*  
 Laponchai Jirachuphun 10  
 Víctor Lopez 16  
 Vahid Fazel-Rezai 15  
 Kenny Friedman 15

Title	Presenter	Notes
<b>PDR 1 + 2</b>	<b>with Professor Tim Lu</b>	
Gravitational Waves - Ripples in Spacetime	Jason Liang	5 *
Teach computers to filter spam: a mathematical approach	Blake Elias	5
Candy Queues: Explaining Internet Access with a Candy Factory	Jeremy Ellison	5
Curing Cancer with Living Drugs	Margaret Guo	5
How your fitness trackers find your Heart Rate	Zixi Liu	5
<b>Twenty Chimneys</b>	<b>with Professor Muriel Medard</b>	
The Button Gmail's Missing: "Compress It"	Nichole Clarke	9 *
MergeSort: putting everything in its place	Lee Gavrin	9
Rockets!	Joe Kusters	9
The Surreal Numbers	Kevin Phillips	9
How tuning a radio works	Allan Sadun	9
<b>Mezzanine Lounge</b>	<b>with Professor Luís Velásquez-García</b>	
CRISPR: How we can edit our DNA	Arturo Campos	15 *
Bloom Filters. Easily remember something you have seen before.	Donald Little	9
An Inside Look at Counting Cards in Blackjack	Jeremy Bogle	15
The Pigeonhole Principle, Why Perfect File Compression Is Impossible	Deanna Heer	14
Preventing Race Conditions in Concurrent Programming	Matthew Kalinowski	15 >
<b>Coffeehouse Lounge</b>	<b>with Alex Chumbley</b>	
Quantum Superposition: When guessing is good enough	Dencil Wilmot	5 *
What the future sounded like	Alex Souvannakhot	5
How to stream Netflix, FaceTime, and go on Facebook all at the same time	Tamar Weseley	5
CRISPR/Cas9	Colin McDonnell	15
How to End the World	Gabrielle Rivera	9
<b>PDR 4</b>	<b>with Virginia Chiu</b>	
Through the Galactic Looking Glass: How We Can See 13 Billion Years Into the Past and Why That Matters for the GPS in Your Phone	Lily Zhou	13 *
The Transistor	Daniel Moon	13
Real Life Mind Control	Michaela Ennis	13
Prisoner's Dilemma: To Tell or Not to Tell	Morgan O'Brien	13
Max Flow: The Secret to Plumbing and Warfare	Devin Neal	11 >

Title	Presenter	Notes
<b>PDR 1 + 2</b>	<b>with Emily Zhang</b>	
How to Build a Supercar	Liza Gaylord	14 *
Over and Over Again: Fractals and Their Applications	Akshay Ravikumar	17
Who should be in charge? Leader election in a distributed network	Barbara Duckworth	15
Counting to Infinity	Weilian Chu	14
Designing Randomness in Video Games	Logan Martin	10
(no title)	Andre Mroz	
<b>Twenty Chimneys</b>	<b>with Dr. Jason Miller &amp; Nikhil</b>	
Don't Jump to Conclusions: Good Statistics Can Lead to Bogus Conclusions	Victoria Xia	11 *
Getting Close Enough to the Point	Emmanuel Fasil	12
Buck Converters	Andre Walker	10
Writing Better Computer Programs, Automatically	Zachary Neely	10
Hijacking the Immune System	Maria Karelina	10

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