



US – JAPAN WORKSHOP

NEW-GENERATION COMPUTERS: QUANTUM ANNEALING AND COHERENT COMPUTING

- Quantum annealing and coherent Ising, XY, and Heisenberg machines
- Combinatorial optimization problems and IoT
- Semi-definite programming, simulated annealing and other heuristics
- Implementation and performance evaluation in optical, superconducting, and semiconducting devices.

December 10-11, 2015
Stanford University

Organized by

Yoshihisa Yamamoto

Quantum Artificial Brain ImPACT Program, The Cabinet Office of Japan & Stanford University

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Quantum Enhanced Optimization IARPA Program, MIT Lincoln Laboratory

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PROGRAM

December 10 (Thu)			
8:00 - 9:00		Registration	
9:00 - 9:10	(10)	Welcome Remarks (Yoshihisa Yamamoto, Will Oliver)	
9:10 - 9:40	(30)	Yoshihisa Yamamoto (ImPACT Program/Cabinet Office of Japan, Stanford University)	Coherent Ising machine
9:40 - 10:20	(40)	Alireza Marandi (Stanford University)	OPO network as CIM
10:20 - 10:50		Coffee Break	
10:50 - 11:30	(40)	Will Oliver (MIT / MIT Lincoln Laboratory)	Superconducting technologies for quantum enhanced optimization
11:30 - 12:10	(40)	Simon Gustavsson (MIT)	Capacitively shunted flux qubit
12:10 - 14:00		Free Time	
14:00 - 14:40	(40)	Shoko Utsunomiya (National Institute of Informatics)	Laser network as coherent XY machine
14:40 - 15:20	(40)	Hiroki Takesue (NTT)	Large-scale CIM
15:20 - 15:50		Coffee Break	
15:50 - 16:30	(40)	David Hover (MIT Lincoln Laboratory)	Josephson traveling wave parametric amplifier
16:30 - 17:10	(40)	Daniel Lidar (University of Southern California)	Error correction for quantum annealing
17:30 - 19:00		Poster Session	
December 11 (Fri)			
9:00 - 9:40	(40)	Matthias Troyer (ETH Zurich)	Classical, quantum, and quantum-inspired annealing
9:40 - 10:20	(40)	Eleanor Rieffel (NASA-Ames Research Center)	Programming quantum annealers, application case studies, and analyses of enhancement mechanisms
10:20 - 10:50		Coffee Break	
10:50 - 11:30	(40)	Yuichi Katori (Future University Hakodate)	Associative memory with CIM
11:30 - 12:10	(40)	Timothee Leleu (The University of Tokyo)	Combinatorial optimization using dynamical phase transition in driven-dissipative systems
12:10 - 14:00		Free Time	
14:00 - 14:40	(40)	Vadim Smelyanskiy (Google)	Instantons in quantum annealing: thermally assisted tunneling vs quantum Monte Carlo simulations
14:40 - 15:20	(40)	Sergio Boixo (Google)	Tunneling in physical quantum annealing
15:20 - 15:50		Coffee Break	
15:50 - 16:30	(40)	Hidetoshi Nishimori (Tokyo Institute of Technology)	Bayesian inference of the Ising model ground state out of noisy data
16:30 - 17:10	(40)	Masanao Yamaoka (Hitachi)	A CMOS Ising computer with CMOS annealing for combinatorial optimization problems
17:10 - 17:50	(40)	Jonathan Keeling (University of St. Andrews)	Cold atom based XY machine

VENUE & PARKING

CIS-X Auditorium

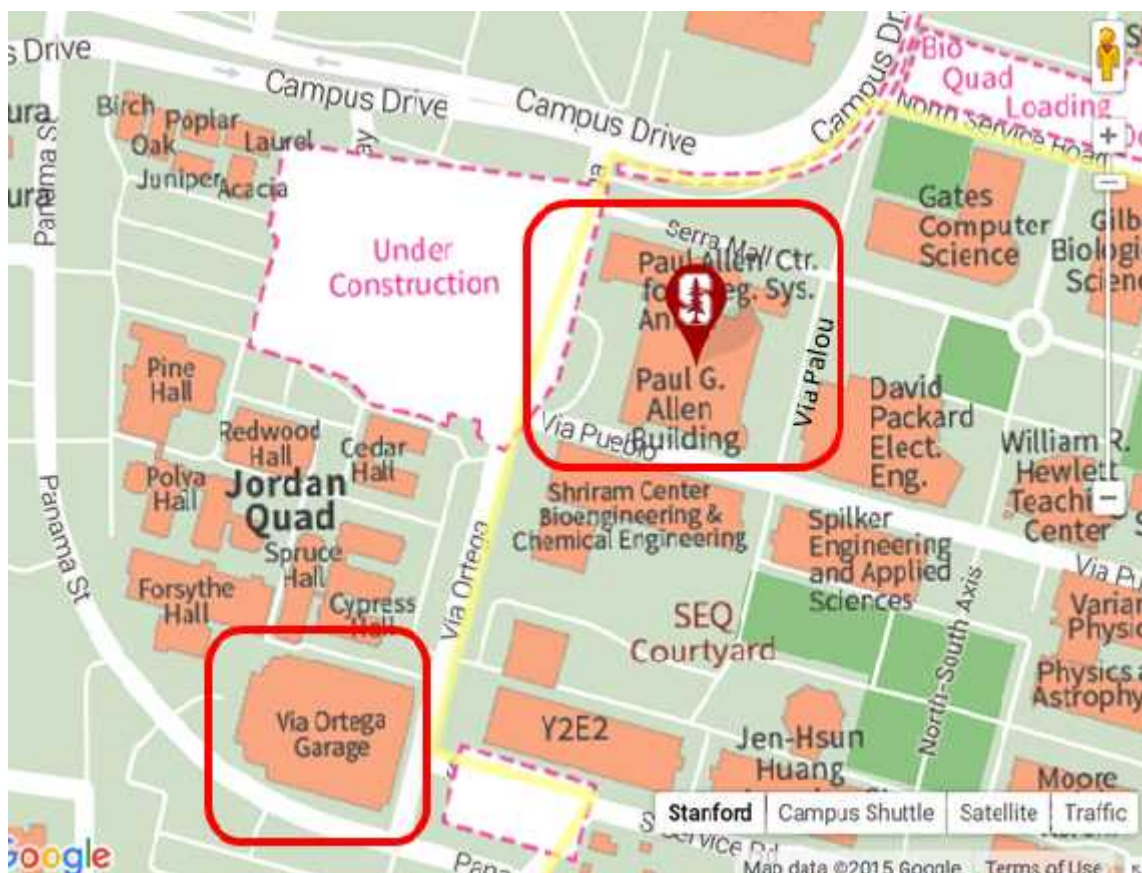
Paul G. Allen Building

(also known as Center for Integrated Systems (CIS))

420 Via Palou Mall

Stanford, CA 94305-4070

<https://campus-map.stanford.edu/index.cfm?ID=04-050>



The nearest visitor parking (Via Ortega Garage) is located at the corner of Via Ortega and Panama Street. There is no free parking on campus from 6am to 4pm. The visitor "A" permits are available at the registration desk in front of CIS-X Auditorium from 8am to 4pm on December 10 and 11. The visitor will scratch off the date and it has to be hung from a rear-view mirror, facing out. The "A" permit is valid for one-full day for both "A" and "C" zones but not for "P"(pay) parking.

You can also purchase visitor permits at Stanford's Parking and Transportation Services office. For more information about parking, please visit the link below.

(No reimbursement will be made by Stanford University.)

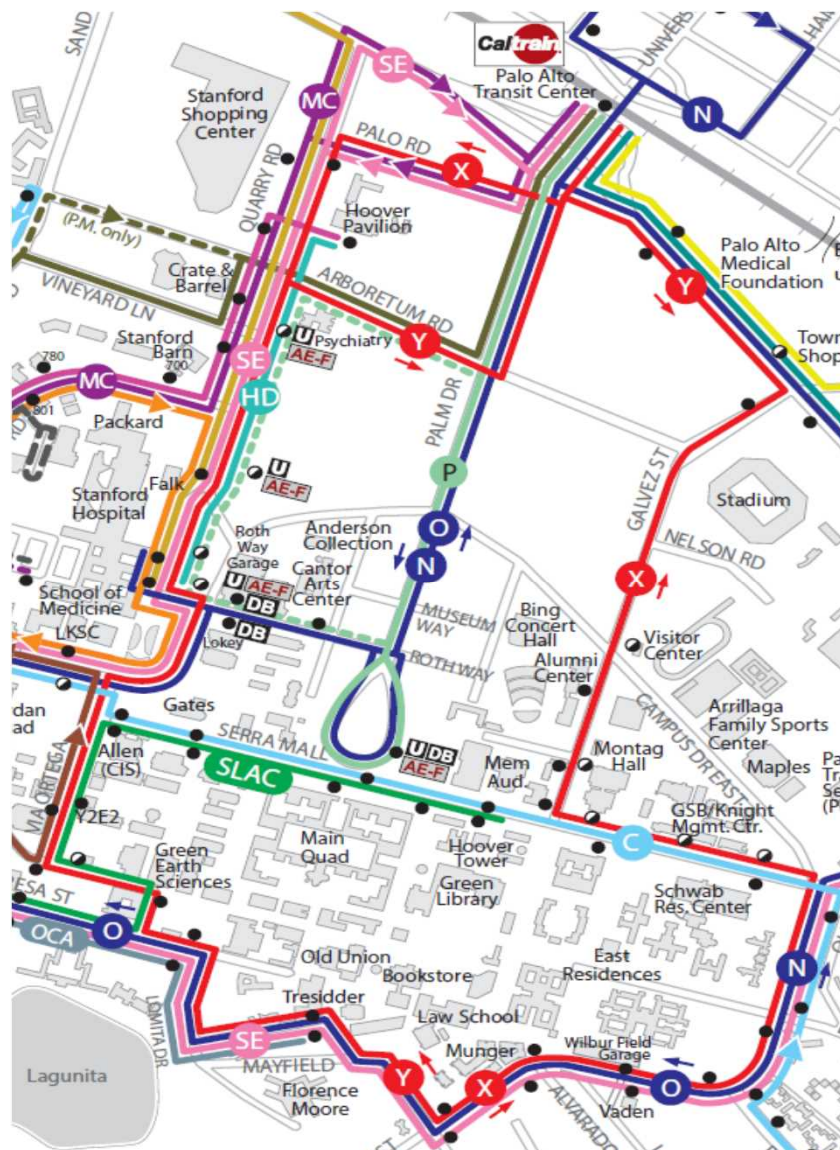
http://transportation.stanford.edu/parking_info/VisitorParking.shtml

ON-CAMPUS SHUTTLE BUSES - MARGUERITE

The Marguerite is Stanford's free shuttle bus service that travels around the Stanford campus and its vicinity. For details, see <http://transportation.stanford.edu/marguerite/>

Line X (Counter-Clockwise) Palo Alto Transit Center (Caltrain platform) → Via Ortega @ Y2E2
<http://transportation.stanford.edu/marguerite/x/>

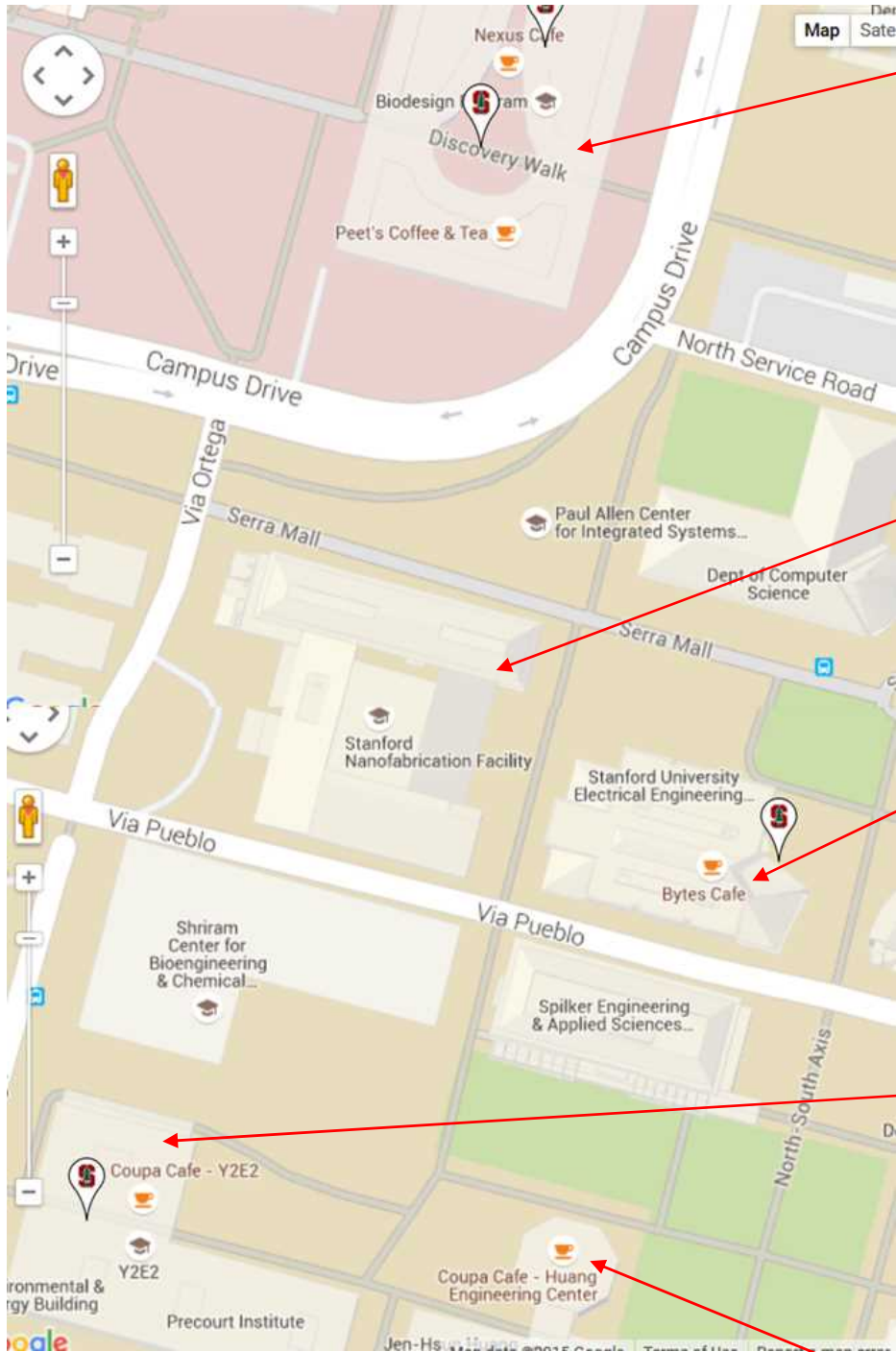
Line Y (Clockwise) Via Ortega @ Y2E2 → Palo Alto Transit Center (Caltrain platform)
<http://transportation.stanford.edu/marguerite/y/>



Larger map & other routes

<http://transportation.stanford.edu/marguerite/schedules.php>

DINING MAP



**Nexus,
Peet's Coffee and Tea**
James H. Clark Center
318 Campus Drive West

CIS-X Auditorium
Paul G. Allen Building

Bytes Cafe
350 Serra Mall

Coupa Cafe - Y2E2
473 Via Ortega

**Forbes Family Cafe,
Coupa Cafe - Huang
Engineering Center**
475 Via Ortega

Stanford offers over 30 dining options right on campus.
For more options, visit this link
<http://visit.stanford.edu/activities/dining.html>

TAXI AND AIRPORT SHUTTLE

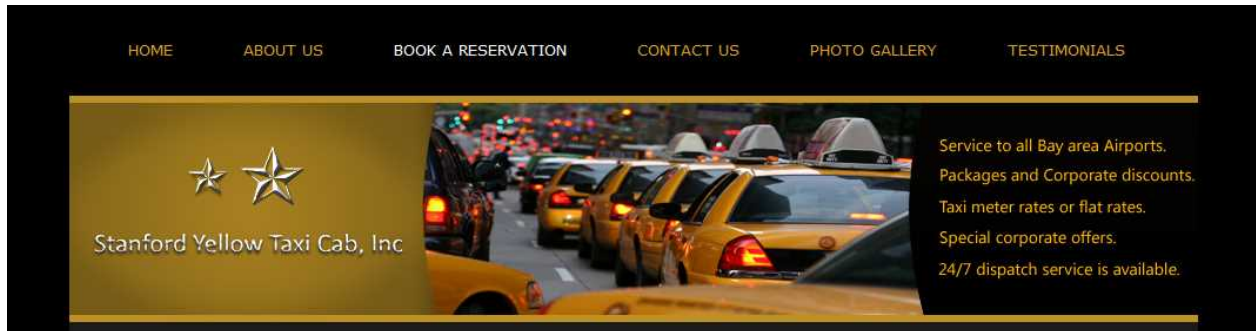
Stanford Yellow Taxi Cab, Inc

Website: <http://stanfordtaxicab.com/>

Email: stanfordcab@gmail.com

Toll Free: 1-800-725-1777

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SuperShuttle

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