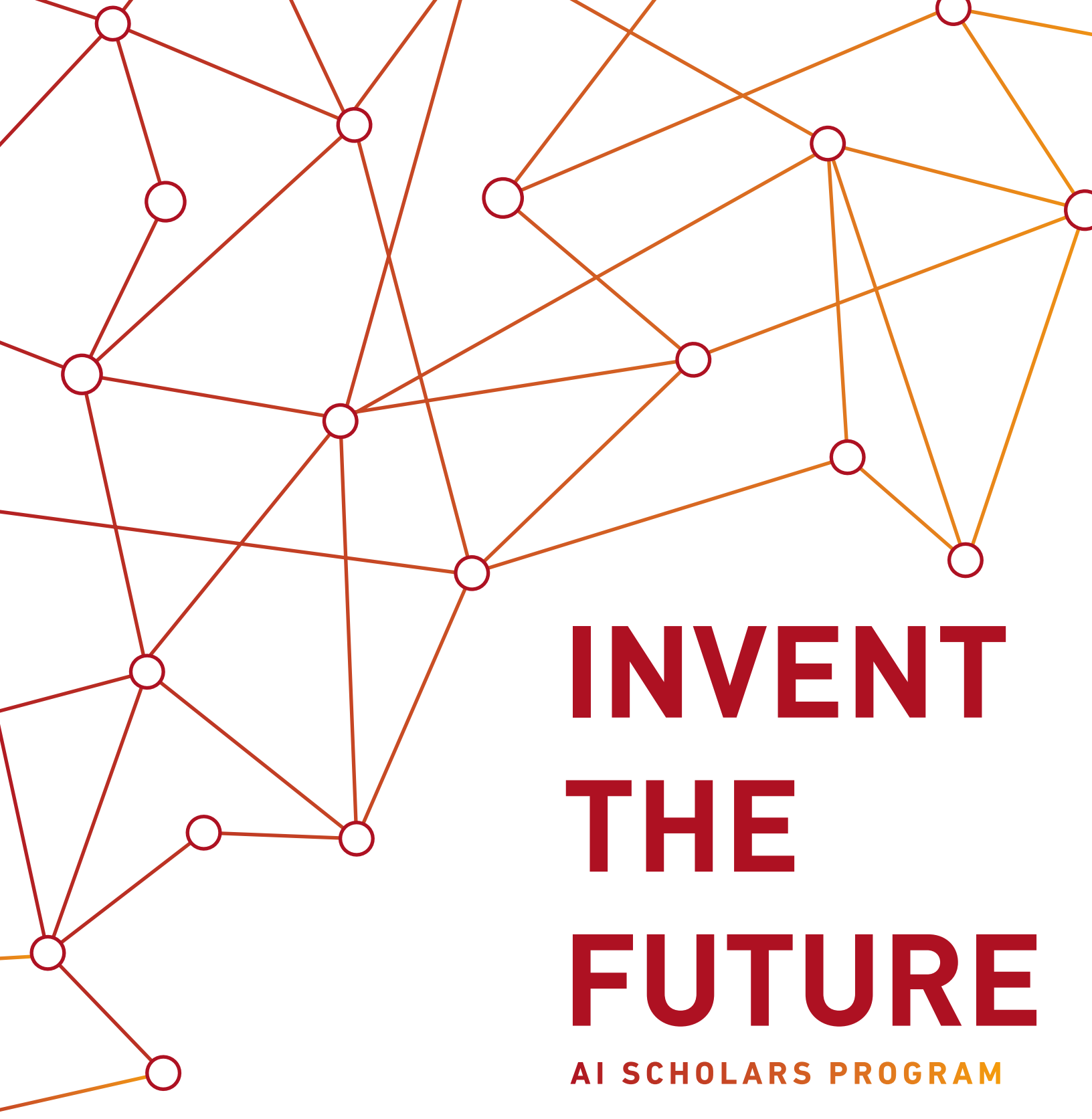


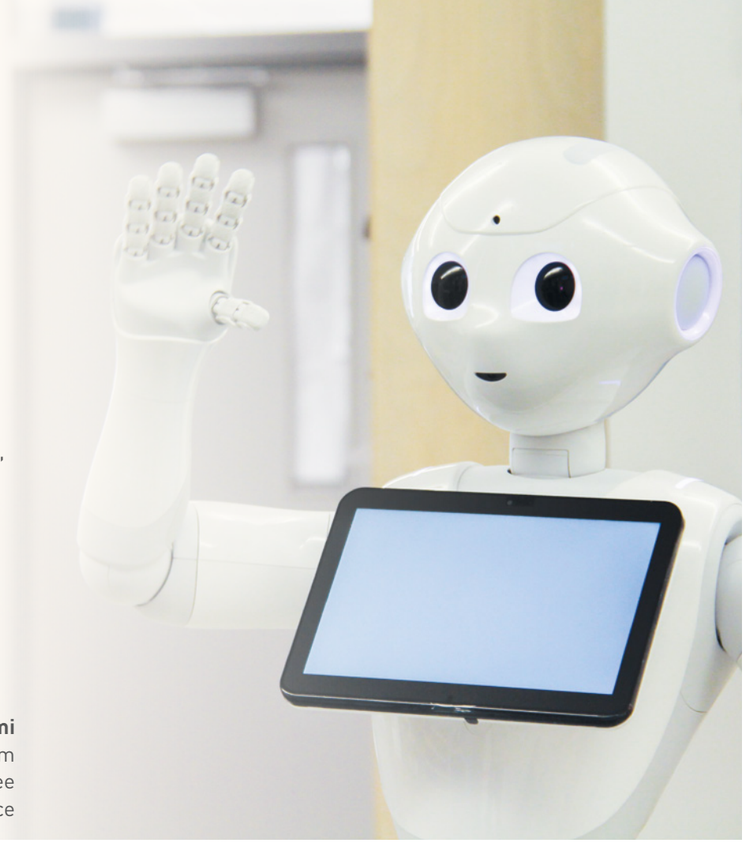
INVENT THE FUTURE

AI SCHOLARS PROGRAM

July 15 - 26, 2019 | Simon Fraser University, British Columbia

SFU FACULTY OF APPLIED SCIENCES | SCHOOL OF COMPUTING SCIENCE

WELCOME



Welcome AI Scholar!

We are delighted that you are starting your AI journey with the 2019 cohort of our Invent the Future (AI4ALL): AI Scholars Program. The activities in these two weeks are designed to provide you the foundation you need to use AI technology to solve problems important to you, your community, and the globe.

We also welcome you in joining our growing community of AI leaders. You will meet AI experts, work with your AI mentors, and make friends sharing the same passion to explore the world of AI; people who can help you along the way.

We hope you enjoy your time and take the first strong steps towards learning more about computer science and artificial intelligence. Welcome, and enjoy inventing the future!

Ouldooz Baghban Karimi
Co-Director, Invent the Future Program
Chair, Diversity Committee
SFU School of Computing Science

SPONSORS AND PARTNERS

Program Partners:

SFU FACULTY OF APPLIED SCIENCES | SCHOOL OF COMPUTING SCIENCE

AI

Educational Partner:

SoftBank Robotics

Program Sponsor:

CIFAR

Supporters and Venue Sponsors:

SFU BIG DATA

SFU INNOVATES think. engage. change. VentureLabs®

MetaOptima

BOREALIS AI

salesforce

MEET THE TEAM

ANGELICA LIM

Co-director

Assistant Professor of Professional Practice, School of Computing Science

Dr. Angelica Lim has worked on social robots for over 10 years in France, Japan and Canada. She leads the SFU ROSIE Lab, focusing on building robots with social intelligence and empathy, particularly using affective and developmental robotics paradigms. Previously, she spent 4 years as a Software Engineering Manager at SoftBank Robotics, where she led the emotion and expressivity team for Pepper the humanoid robot. She has been featured on the BBC, TEDx, hosted a TV documentary on robotics, and was recently featured in Forbes 20 Leading Women in AI. She received her BSc in Computing Science (Artificial Intelligence Specialization) from SFU and a PhD and Masters from Kyoto University, Japan.

OULDOOZ BAGHBAN KARIMI

Co-director

Lecturer, Chair of Diversity Committee, School of Computing Science

Ouldooz Baghban Karimi (PhD, SFU 2013) is a data and networks specialist. Earlier in her career, she joined networking industry (Cyan, Ciena). Her years of industry experience includes building network products (as a software engineer) and customer-facing solution integration (introducing new networking solutions to international telecommunication providers in Asia, Europe, North America, and South America). Her current research interests include virtualization at the edge, network anomalies, and user privacy in network measurements. In addition to her specialty in data and networks, she is passionate about computing science education, and societal problems including fair access and underrepresentation.

STEVEN BERGNER

Head Instructor

University Research Associate, School of Computing Science

Steven is currently a University Research Associate at Simon Fraser University teaching in SFU's Professional Master's program on big data science and visualization. His research focus is at the interface between data-driven modeling and human interactions. Steven received a MSc in Computational Visualistics from Otto-von-Guericke University Magdeburg, Germany, and a PhD in Computing Science from SFU in 2011.

MARY LE

Program Coordinator

Undergraduate Student, Faculty of Education

Mary is currently working towards completing her degree in education and hopes to continue working in the education field especially within the scope of curriculum development. In her free time, she enjoys reading, binge watching Netflix and trying new foods.

SPEAKERS

DIANA CUKIERMAN
Artificial Intelligence

Diana Cukierman is a Senior Lecturer of Computing Science at Simon Fraser University and a Faculty of Applied Sciences Teaching Fellow. She earned an Engineer in Computing Systems degree at the University of the Republic of Uruguay and MSc and PhD degrees at SFU in Computing Science in the area of Artificial Intelligence. Cukierman has held teaching positions at the university level for more than 18 years, and has been awarded a SFU Faculty of Applied Sciences Teaching Excellence award. She is actively engaged in computing science education research, and is the co-developer and co-coordinator of the Academic Enhancement Program, a program that helps students succeed in their university studies by incorporating learning activities and reflection within their courses. Cukierman is passionate about teaching, learning and pedagogy. She searches to incorporate a variety of tools and multidisciplinary concepts and theories in her courses, looking forward to motivating students in their studies.

LENKA PITONAKOVA
Robotics

Lenka is a Robotics Systems Developer at A&K Robotics, Vancouver. She has recently moved to Canada from the United Kingdom, where she lived for 12 years. Her country of origin is Slovakia. Lenka's background is in artificial intelligence, swarm robotics and general software and games development. She obtained her PhD in Swarm Behaviour Design from the University of Southampton, UK. She was then awarded a one year fellowship which she spent working with e-puck robots at the Bristol Robotics Laboratory. Shortly before moving to Canada, she worked for the University of Bristol as a Research Associate specializing in unsupervised learning. Lenka's track record includes creation of the Behaviour-Data-Relations modelling language for multi-agent systems and development of simulation software, games and libraries accompanying her research. She has also worked for a number of European companies on big data analysis, web and mobile applications.

SARA MOSTAFAVI
Computational Biology

Sara Mostafavi is an Assistant Professor in the Departments of Statistics and Medical Genetics at the University of British Columbia (UBC), Vancouver, Canada. Her research interest focuses on developing and applying statistical and machine learning approaches to study the genetic basis of complex human traits. Before joining UBC, Sara obtained her PhD in Computer Science at the University of Toronto in 2010 and conducted her postdoctoral fellowship at Stanford University. At UBC, Sara holds a Canada CIFAR Chair in Artificial Intelligence as well as a Canada Research Chair in Computational Biology.

ANGEL CHANG
Natural Language Processing

Angel Chang is a visiting research scientist at Facebook AI Research, and an assistant professor at Simon Fraser University. She received her PhD from Stanford University, where she was part of the NLP group and was advised by Chris Manning. Her research focuses on the intersection of natural language understanding, computer graphics, and AI. She is interested in connecting language to visual and 3D representations, and grounding language for embodied agents in indoor environments. She has worked on synthesizing 3D scenes and shapes from natural language. She is a recipient of the TUM-IAS Hans Fischer Fellowship and a Canada CIFAR AI Chair.

MANOLIS SAVVA
Computer Vision

Manolis Savva is an Assistant Professor at Simon Fraser University and a visiting researcher at Facebook AI Research. He received his PhD from Stanford University, under the supervision of Pat Hanrahan, and was a postdoctoral research associate at the Princeton University Computer Graphics and 3D Vision Lab. His research focuses on analysis, organization, and generation of 3D content through a human-centric lens of "common sense" semantics. The methods that he works on are stepping stones towards a holistic form of 3D scene understanding revolving around people, with applications in computer graphics, computer vision, and robotics.

LESLEY ESFORD
Pitch & Innovation

Lesley is an experienced Life science professional with varied background related to company innovation and commercialization, securing finance, and scientific research and development. In terms of education, she has degrees in both Business Administration (Hons. BAdmin., with a major in finance) and Science (BSc, MSc, PhD). Since 2006, she has worked with over 100 entrepreneurs developing drugs, medical devices, and diagnostics addressing a wide array of medical diseases at every stage of the innovation process from concept to commercialization. Through this work she has expanded her professional network and gained a more comprehensive understanding of the Life Sciences sector and investment community globally. Lesley is a Kauffman Fellow, a Silicon Valley-based international leadership program for venture capitalists and innovators of all kinds.

MENTORS

PROGRAM MENTORS

KAMILA BEKSHENTAYEVA

MASTER'S STUDENT IN ENGINEERING SCIENCE WITH RESEARCH INTERESTS IN VIRTUAL NETWORK EMBEDDING AND NETWORK SECURITY

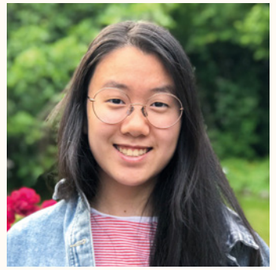
Kamila is originally from Kazakhstan. She has 3 years of work experience at Samsung and IBM. Apart from work and classes, she loves spending time with her family, traveling, and discovering new things.

NEHA SHARMA

PHD CANDIDATE WITH RESEARCH INTERESTS IN MULTIMEDIA NETWORKING, COMPUTER VISION AND MACHINE LEARNING

Neha's current research focuses on Hyperspectral imaging using deep learning models for mobile applications. She enjoys travelling to different places with family and friends. In her free time, she loves to paint and watch movies.

ALUMNAE MENTORS



CAROLYN CHEN

Carolyn is an alumna of the Invent the Future program from 2018. She is looking forward to beginning her undergraduate studies in the fall and has done volunteering at the Natural Language Processing lab.

SARAH LI

Sarah Li is attending university in the fall and hopes to use AI in conjunction with medicine to help tackle global issues and increase access to seek medical attention.

KIMIA ROSTIN

Kimia is a recent high school graduate and STEM enthusiast from Dr. Charles Best Secondary, where she was a Math & Science Peer-Tutor, and President of the computer science club. Besides programming, Kimia also enjoys volunteering at healthcare facilities and playing the piano.

MELODY THOMSON

Melody is a previous Invent the Future alumna and intends to pursue computing science moving forward into post secondary. She loves trying new things and travelling.

PROJECT MENTORS

RAQUEL AOKI

PHD CANDIDATE WITH RESEARCH INTERESTS IN MACHINE LEARNING AND BIOINFORMATICS

Raquel's research goal is to identify genes that contribute to cancer development using Artificial Intelligence. In her free time, she likes hiking during the summer and reading during the winter.

YASAMAN ETESAM

MASTER'S STUDENT WITH RESEARCH INTERESTS IN COMPUTER VISION

Yasaman is working in VML lab. Her bachelor's degree was in Electrical Engineering, so she would be happy to help anyone in a dilemma between CS and EE.

SACHINI HERATH

MASTER'S STUDENT WITH RESEARCH INTERESTS IN COMPUTER VISION

Sachini's current research focuses on a data driven approach for inertial navigation. During her free time, she loves to bake, read and spend time among trees.

NISHANT KAMBHATIA

PHD STUDENT IN COMPUTING SCIENCE WITH RESEARCH INTERESTS IN NATURAL LANGUAGE PROCESSING

Nishant is an avid Star Wars fan and has made numerous attempts to create his own C-3P0. He holds two Masters degrees in Software Engineering and Computer Science, and spends his free time solving Sudoku puzzles or playing video games on his Xbox.

LIZ LOCKHART

MASTER'S STUDENT IN ENGINEERING SCIENCE WITH RESEARCH INTERESTS IN COMPUTER VISION

Liz works in the Laboratory for Robotic Vision, where she is developing techniques to predict viable embryos for IVF treatment. She enjoys cooking and long walks along the ocean.

MAHSA MALEKI ABYANEH

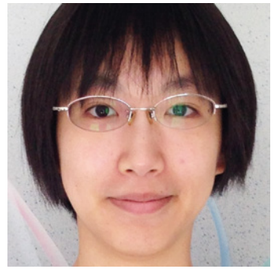
MASTER'S STUDENT IN COMPUTING SCIENCE

Mahsa's research focuses on Computer Vision. She enjoys painting during her free time!

POOYA MORADI

MASTER'S STUDENT WITH RESEARCH INTEREST IN NATURAL LANGUAGE PROCESSING AND MACHINE LEARNING

Pooya has 3.5 years of professional industry experience. He currently works in the Natural Language Processing lab working on Machine Translation. He is an experienced hiker and backpacker!



ALICE YUE

PHD CANDIDATE IN BIOINFORMATICS

Alice's research focuses on flow cytometry data analytics. She sorts cells into their respective cell types and uses this data to infer useful biological information. Alice loves anime and going for long walks by busy streets.

SCHEDULE - WEEK 1

	15 MON	16 TUE	17 WED	18 THU	19 FRI
09:00 AM	Set Up	Set Up	Set Up	Set Up	Set Up
09:30 AM	Program Overview	Mon. Review	Tue. Review	Wed. Review	Thurs. Review
10:00 AM	Introduction to Artificial Intelligence **Diana Cukierman** **ASB 10900**	Robotics **Lenka Pitonakova** **ASB 10900**	Computational Biology **Sara Mostafavi** **ASB 10900**	Natural Language Processing **Angel Chang** **ASB 10900**	Computer Vision/ Graphics **Manolis Savva** **ASB 10900**
10:30 AM	BREAK				
11:00 AM	Python Crash Course in Jupyter Notebooks **ASB 10900**	Classification **ASB 10900**	Clustering **ASB 10900**	NLP Intro **ASB 10900**	Computer Vision Basics Clustering **ASB 10900**
11:30 AM					
12:00 PM	LUNCH TASC 9204				
12:30 PM					
01:00 PM	Personal Development	Robotics Hands-On with Pepper **Pepper Ambassadors** TASC 9204	Probability and Bayes **ASB 10900**	Language Prediction, Further topics: Accuracy, Precision, Recall **ASB 10900**	Deep Learning **ASB 10900**
01:30 PM					
02:00 PM	Machine Learning Basics **ASB 10900**				
02:30 PM					
03:00 PM	SNACK BREAK				
03:30 PM					
04:00 PM	Social Activity	Social Activity	Social Activity with WiCS	Social Activity: Fencing	Project Group Preferences TASC 9204
04:30 PM					
05:00 PM					
05:30 PM					

SCHEDULE - WEEK 2

	22 MON	23 TUE	24 WED	25 THU	26 FRI
09:00 AM	Set Up	Set Up	FIELD TRIP DAY MEET AT 8AM* **Bus to Downtown**	Set Up	Set Up
09:30 AM	Program Overview TASC 9204	Mentor-led Project Time BREAKOUT ROOMS		Mentor-led Project time BREAKOUT ROOMS	Presentations & Feedback **ASB 10900**
10:00 AM	Project Briefing in Teams with Mentors BREAKOUT ROOMS				
10:30 AM	BREAK			BREAK	
11:00 AM	Project Times BREAKOUT ROOMS	Q & A **Fei Fei Li** AI4ALL Co-founder **ASB 10900**	**Salesforce**	Innovation & Pitch **Lesley Esford** TASC 9204	
11:30 AM					
12:00 PM	LUNCH TASC 9204	LUNCH TASC 9204		LUNCH TASC 9204	
12:30 PM			Lunch at **Salesforce**		
01:00 PM	Data Sanity **Ouldooz Baghban Karimi** TASC 9204	Mentor-led Project Time BREAKOUT ROOMS		Mentor-led Project Time BREAKOUT ROOMS	Presentations & Feedback **ASB 10900**
01:30 PM					
02:00 PM	Mentor-led Project Time BREAKOUT ROOMS		**Borealis AI**		
02:30 PM					
03:00 PM	SNACK BREAK			SNACK BREAK	Interactive Demo Session and Reception **BDH ATRIUM**
03:30 PM					
04:00 PM	Mentor-led Project Time BREAKOUT ROOMS	Elevator Pitch Practice BREAKOUT ROOMS		Project Time BREAKOUT ROOMS	
04:30 PM					
05:00 PM					

*** On Wednesday, July 24, students will need to arrive by 8:00AM to the Applied Science Building (ASB) Atrium for travel to Downtown Vancouver.**

BREAKOUT ROOMS

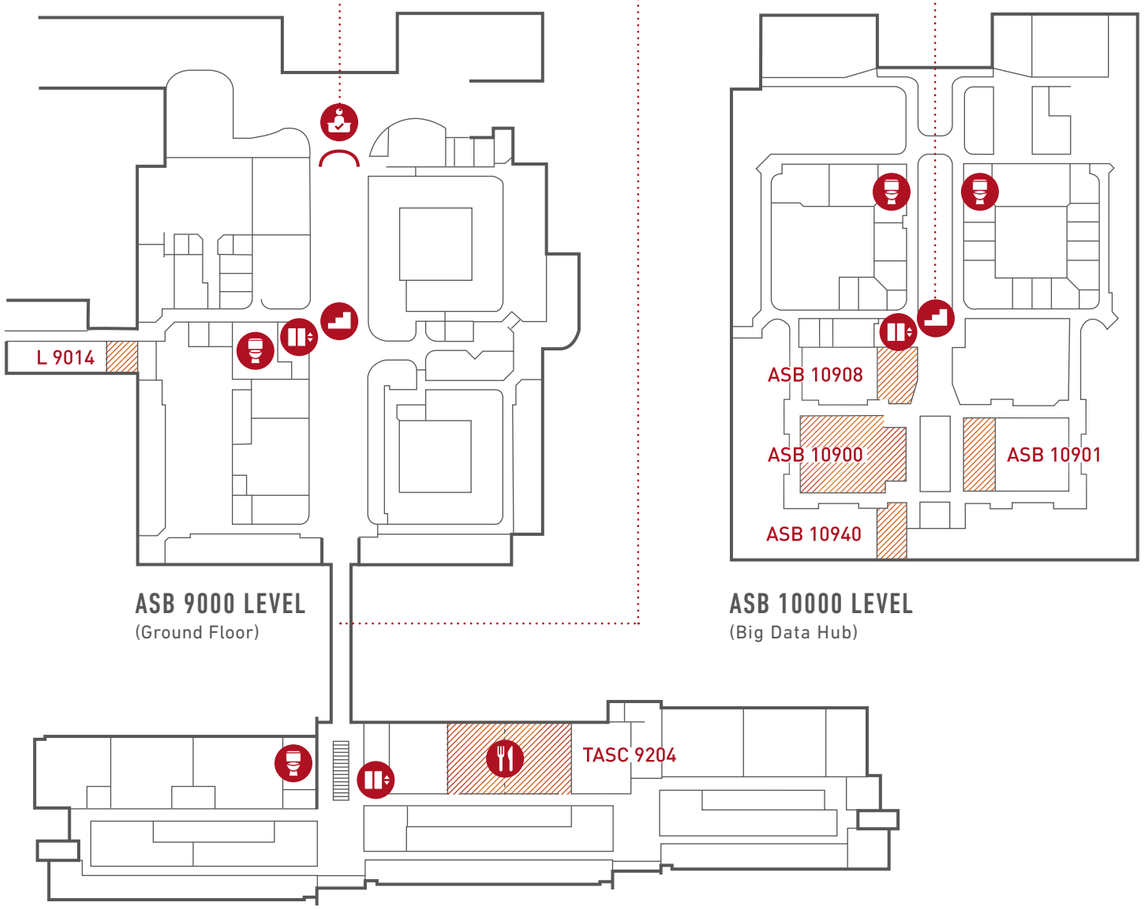
BIOINFORMATICS TEAM
The Boardroom (ASB 10901)

COMPUTER VISION TEAM
The Visualization Lab (ASB 10940)

ROBOTICS TEAM
Flexible Meeting Room (ASB 10908)

NATURAL LANGUAGE PROCESSING TEAM
Link Meeting Room (L9014)

ASB, BDH AND TASC1 MAP



ASB 9000 LEVEL
(Ground Floor)

ASB 10000 LEVEL
(Big Data Hub)

TASC1 9000 LEVEL (Connects with ASB 9000 Level)

Registration
ASB Atrium

Lunch

Elevator

Stairs

Washroom

BREAKOUT ROOMS

BIOINFORMATICS TEAM
The Boardroom (ASB 10901)

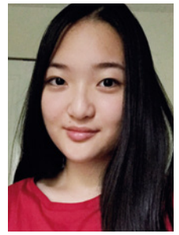
COMPUTER VISION TEAM
The Visualization Lab (ASB 10940)

ROBOTICS TEAM
Flexible Meeting Room (ASB 10908)

NATURAL LANGUAGE PROCESSING TEAM
Link Meeting Room (L9014)

PROGRAM PARTICIPANTS

ABRIELLE C.

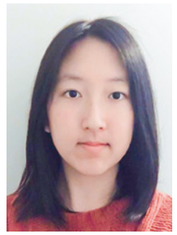


ALLISON D.

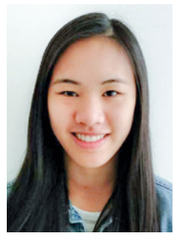
CATHY C.

ELIZABETH W.

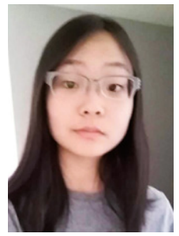
EMILY N.



HARIM C.



HEIDI T.

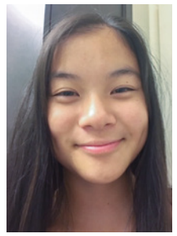


HELEN G.

INES K.

JENICA P.

KATHERINE L.



KELSEY C.

KELSEY G.

KYLIE W.

LAUREN Y.

LAUREN Y.

LINDA B.

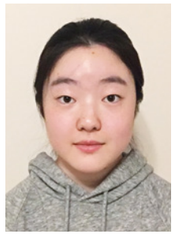
MELISSA N.

MICHELLE V.

OLIVIA C.

REBECCA C.

SKYLAR H.



SOPHIE Z.

TAYLOR M.

INVENT THE FUTURE: AI SCHOLARS PROGRAM

www.sfu.ca/computing/inventthefuture

ai_scholars_sfu

ai4all_sfu

AI4ALL

www.ai-4-all.org

ai4allorg

ai4allorg

FACULTY OF APPLIED SCIENCES

www.sfu.ca/fas

School of Computing Science

www.sfu.ca/computing

FAS.SFU

sfuappliedsciences

FAS_SFU

sfuappliedsciences

Interested in learning more?

Apply to SFU's Computing Science Major with Concentration in Artificial Intelligence.

Connect with our advisors at **asadvise@sfu.ca**

Applied Science Building

Simon Fraser University
8888 University Drive
Burnaby, British Columbia
Canada V5A 1S6

Campus Emergency Line:
778-782-4500

Campus Security Information:
778-782-3100