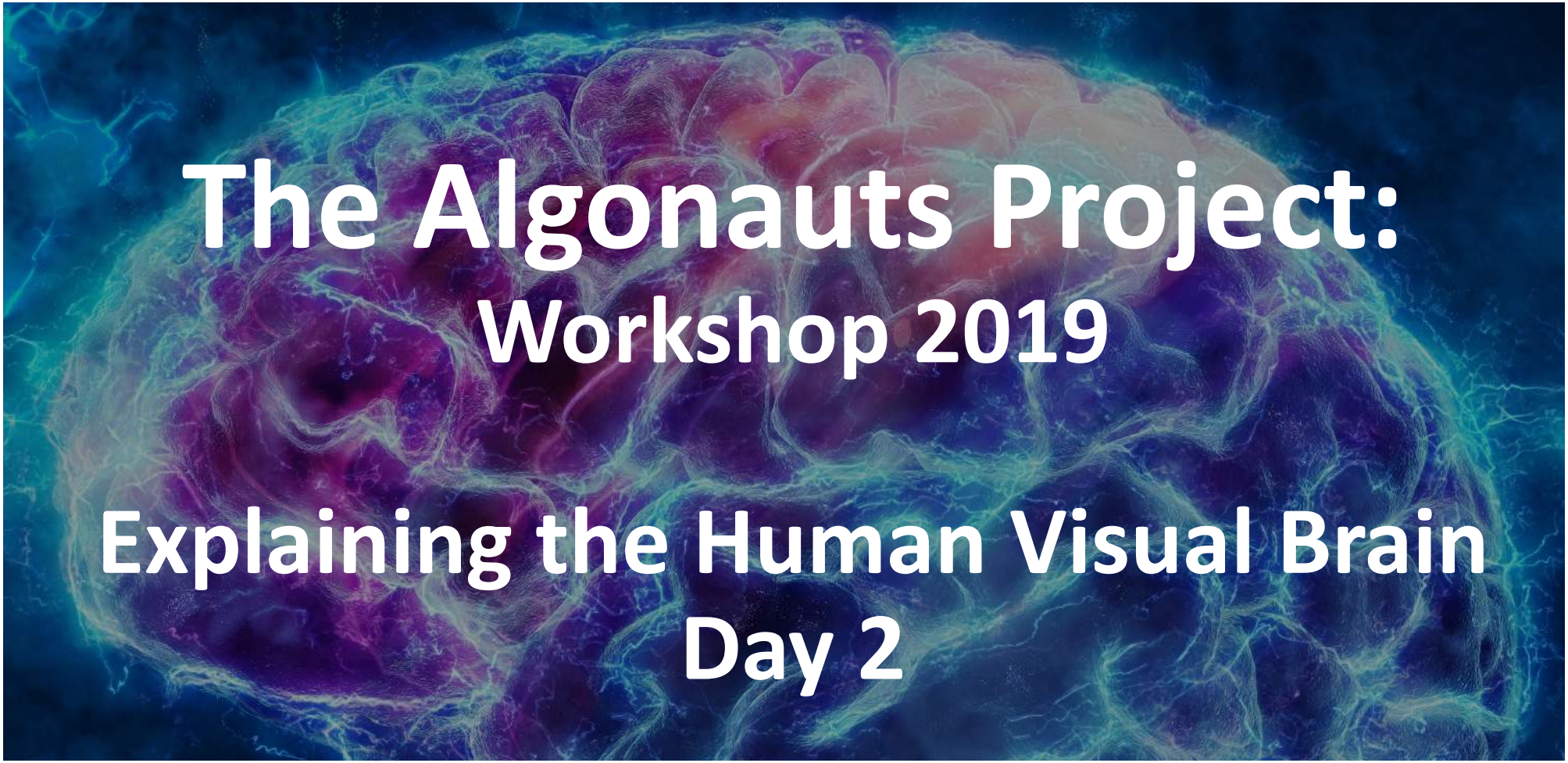


The Algonauts Project:
Workshop 2019

Explaining the Human Visual Brain
Day 2

Radoslaw Martin Cichy, Gemma Roig, Alex Andonian, Kshitij Dwivedi, Benjamin Lahner, Alex Lascelles, Yalda Mohsenzadeh, Kandan Ramakrishnan, Aude Oliva

Freie Universität Berlin

SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

MIT CSAIL

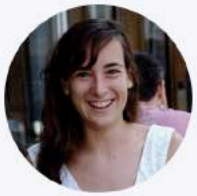
Team & Sponsors

Team Leader: Radoslaw Cichy

Research Group Leader, Freie Universität Berlin

Team Leader: Aude Oliva

Principal Research Scientist, MIT



Team Leader: Gemma Roig

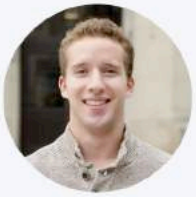
Assistant Professor, SUTD

Alex Andonian

Research Assistant, MIT

Kshitij Dwivedi

PhD Student, SUTD



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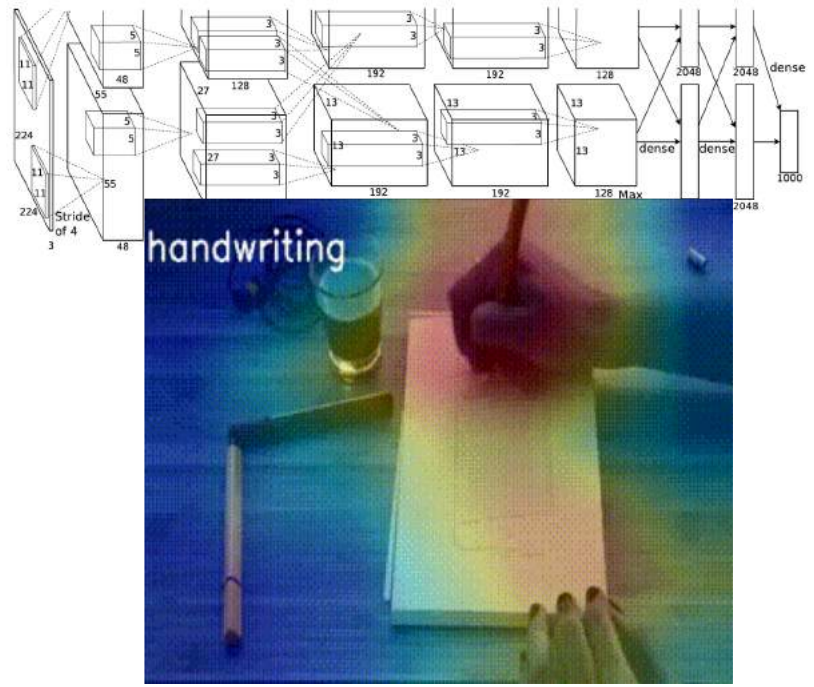
DEPARTMENT OF DEFENSE · UNITED STATES OF AMERICA

NSF

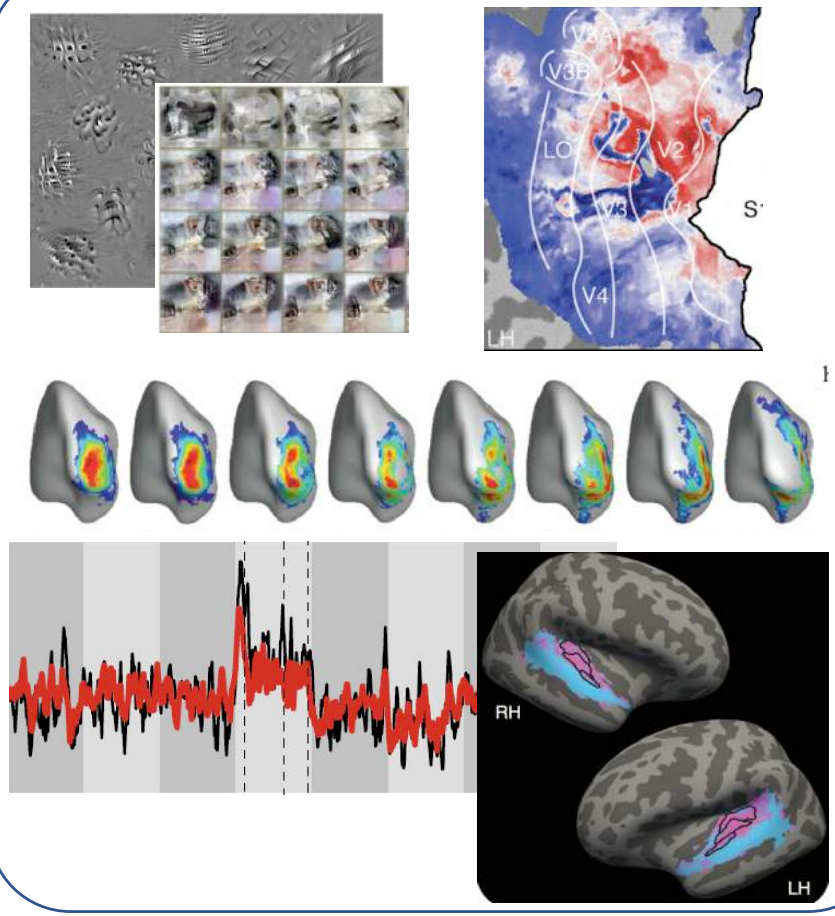
MIT-IBM Watson AI Lab

MIT Quest for Intelligence

Interaction Artificial ⇔ Natural Intelligence

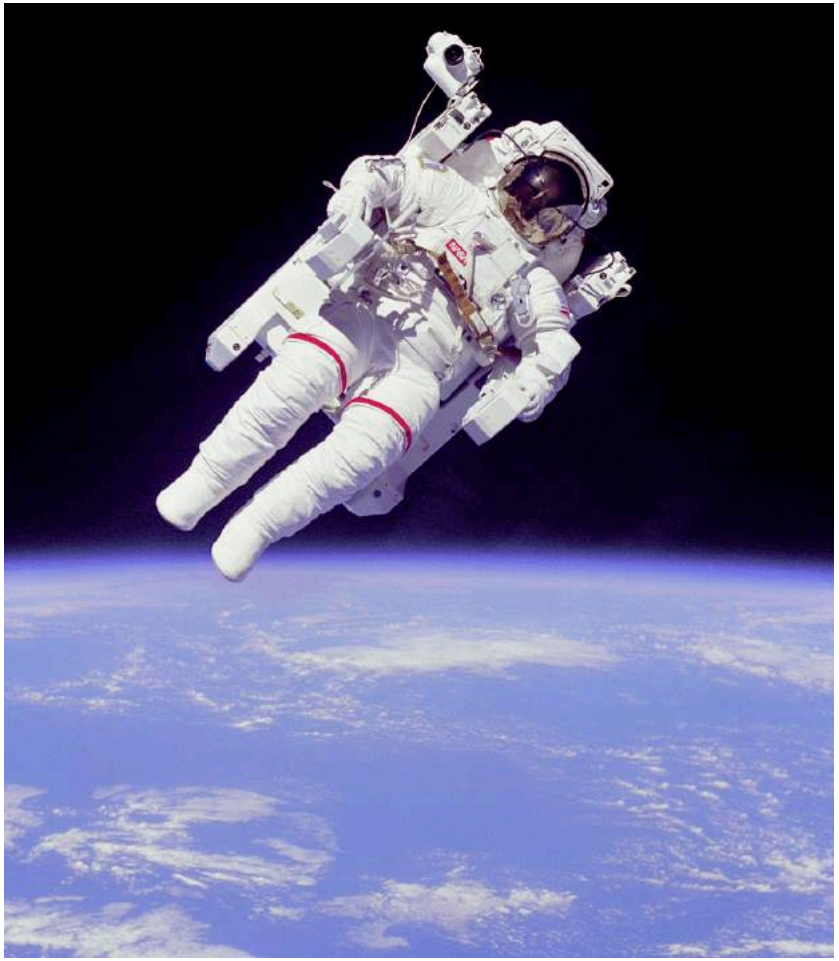


AlphaGo



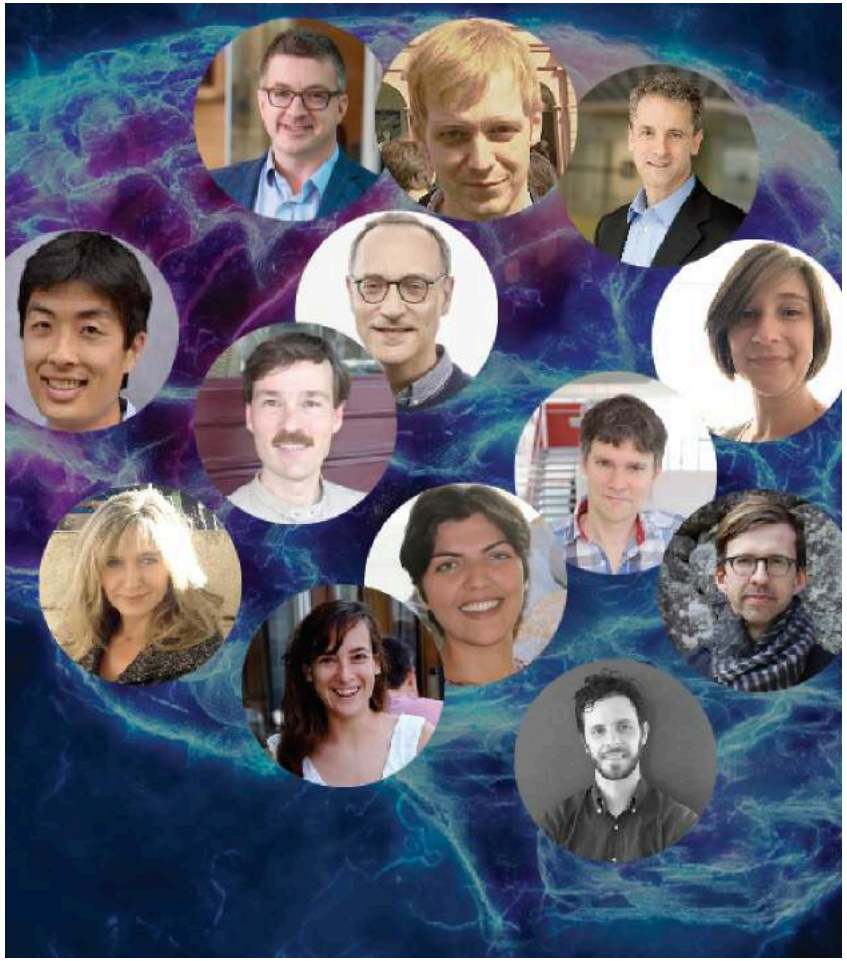
⇒High potential in facilitating communication and collaboration

The Spirit of the Algonauts Project



Astronauts

Sailors of the stars



Algonauts

Sailors of algorithms

Goal & Measures of the Algonauts Project

A structured and quantitative communication channel between natural and artificial intelligence research

Measure 1

Workshop

Day 1: Tutorials

Day 2: Expert talks & posters

Measure 2

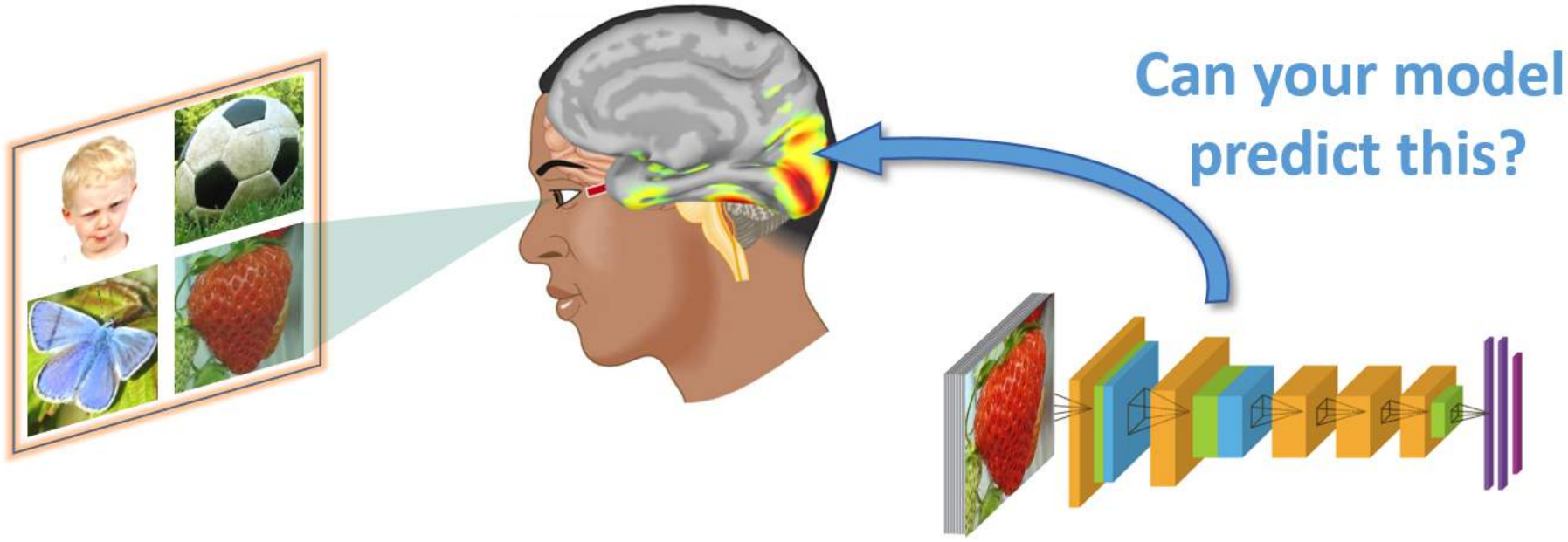
Open Challenge

⇒ 1:30pm – 2:50 pm
Report & winner presentation

2019 Edition of the Algonauts Project

Goal: Explain human visual brain activity by computational models

Focus: Visual object recognition

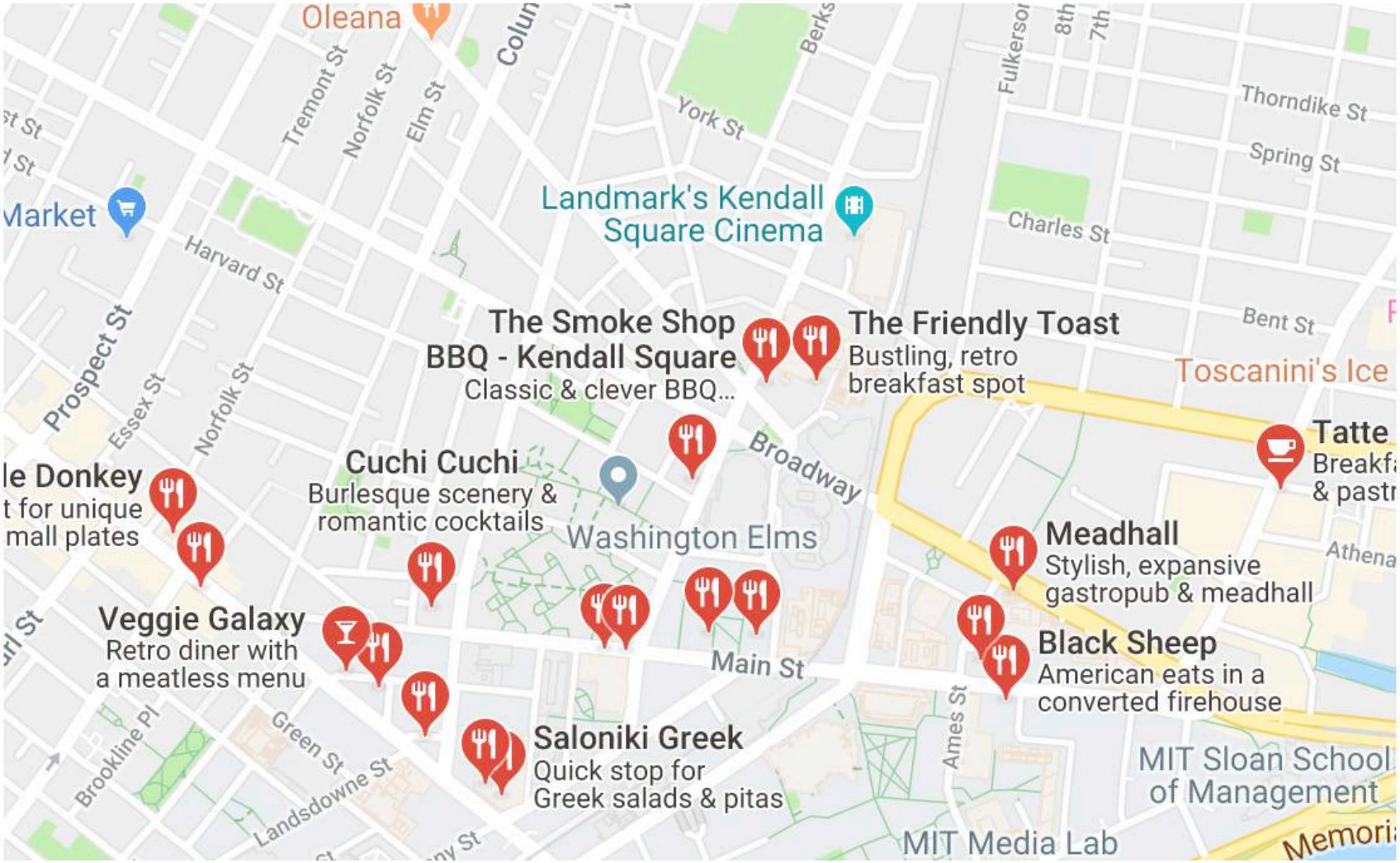


Schedule for Today: Morning session

Time	Event
9:15 am – 9:35 am	Matt Botvinick – Toward Object-Oriented Deep Reinforcement Learning
9:35 am – 9:55 am	Aude Oliva – Interpretability and Visualization of Deep Neural Networks
9:55 am – 10:15 am	Thomas Naselaris – Deep Generative Networks as Models of the Visual System
10:15 am – 11:00 am	Posters and Coffee
11:00 am – 11:20 am	David Cox – Predictive Coding Models of Perception
11:20 am – 11:40 am	James DiCarlo – Brain Benchmarking Our Way to an Understanding of Visual Intelligence
11:40 am – 12:00 pm	Kendrick Kay – The Natural Scenes Dataset: Massive High-Quality Whole-Brain 7T fMRI Measurements During Visual Perception and Memory

Lunch 12:00 – 1:30 pm on your own

Visit Algonauts workshop website for link to MIT on & off-campus dining



Midday: Challenge Session

Time	Event
1:30 pm – 1:50 pm	Introduction to the Algonauts Challenge
1:50 pm – 2:10 pm	**Agustin Lage-Costellanos (1st fMRI, 3rd MEG)** *Maastricht University, NL* Predicting stimulus representations in the visual cortex using computational principles.
2:10 pm – 2:30 pm	**Romuald Janik (3rd fMRI, 2nd MEG)** *Jagiellonian University, PL* Explaining the Human Visual Brain Challenge 2019 – receptive fields and surrogate features
2:30 pm – 2:50 pm	**Aakash Agrawal (2nd fMRI, 1st MEG)** *Indian Institute of Science, IN* Dissimilarity learning via Siamese network predicts brain image data
2:50 pm – 3:30 pm	Posters & Coffee

Afternoon: Talks & Panel discussion

Time	Event
3:30 pm – 3:50 pm	Talia Konkle – Response Preferences vs Patterns: Insights from Deep Neural Networks
3:50 pm – 4:10 pm	Nikolaus Kriegeskorte – Cognitive Computational Neuroscience of Vision
4:10 pm – 4:30 pm	Jack Gallant – Taking Natural Scene Statistics into Account when Evaluating Brain Data and Models
4:30 pm – 5:00 pm	Panel Discussion with Speakers – Moderated by Gemma Roig & Radoslaw Cichy

Evening

5:00pm – 6:00pm Reception (BCS Atrium)

First talk

Matt Botvinick:

Toward Object-Oriented Deep Reinforcement Learning