NOVEMBER 2019

PRIMER: INNOVATION ROUNDTABLE
HEALTHCARE

COLUMBIA INNOVATION ROUNDTABLE
LIMITED | INTERACTIVE | OFF-THE-RECORD | NON-SOLICITATION

Columbia Innovation Roundtable cordially invites you to

STAY RELEVANT | ACCESS THE FUTURE

Join a select group of executives and investors as together we explore industries in the midst of disruption and renewal. Be empowered.

THEME: AI IN MEDICINE - EXPLORING THE HELIX OF DATA SCIENCE, HEALTHCARE & HUMAN IMPACT

Notable Recent Transactions Impacting the $3.65 Trillion U.S. Healthcare Industry

- **Haven** – the Amazon-JPMorgan-Berkshire venture – launched and will initially focus on the group's more than 1.2 million employees and partner with partner with care providers. This month, Alexa Rx – Amazon's voice assistant skilled on medication-management– announced a pilot with pharmacy and supermarket chain Giant Eagle.

- **Google Health** executing a strategy more of users' health data, reached an agreement to acquire wearable device company, FitBit for $2.1 billion. This month, Google announced a partnership with non-profit Ascension – one of the largest healthcare systems with over 2,600 hospitals, medical facilities and doctors' offices. The initiative, code-named "Project Nightingale" will provide Google with millions of patients' user data. Google is using the personal health information to develop AI and machine learning powered software that can "suggest changes" to an individual patient's care.

- **Novartis AG**, this month, agreed to buy Medicines Co. for $9.7 billion, snapping up a promising cholesterol drug and adding to a string of recent acquisitions. Also the launch of the The AI Innovation Lab in partnership with Microsoft was announced last month. The Novartis/Microsoft strategic alliance promises to dramatically increase Novartis' AI capability across the organization, with a broad array use cases, including drug discovery.

SPEAKER: DR. SHAHRAM EBADOLLAHI, GLOBAL HEAD OF DATA SCIENCES & A.I. (NOVARTIS)

Notable Corporate Innovation: The AI Innovation Lab

The AI Innovation Lab – Novaris & Microsoft Partnership   https://www.novartis.com/

The AI Innovation Lab is the Novartis engine and go-to place for AI. In collaboration with Microsoft, the lab aims to bolster our AI capabilities. From research through commercialization, we aim to accelerate discoveries and the development of transformative medicines for patients worldwide.

Intelligent Molecular Design
Our intent is to discover and create better molecules that work more precisely and more efficiently in the body. AI aims to build these molecules inside a machine and quickly extract patterns from our vast array of chemical knowledge. This allows our experts to focus on more diverse sets of molecules that work more efficiently. Intelligent Molecular Design strives to help support the next generation of optimally effective and safe molecules as they make their way to the patient.

Optimized Re-Engineered Cells
We aim to optimize the process that transforms a patient's T Cells into cancer fighting machines that will produce optimal clinical outcomes for each patient. We also aim to improve the process of separating plasma and T Cells from human blood, reengineering the T Cells with a specific virus. This personalized process allows us to transform a patient's T Cells into cancer fighting machines, supporting optimal clinical outcomes for each patient.

Personalized Smart Dosing
We plan to focus on more personalized guidance to clinicians on dosing frequency and treatment plans for patients suffering from age-related macular degeneration (AMD). This condition is a leading cause of severe and irreversible vision loss worldwide. Machine learning models can help provide a more personalized adaptive treatment and dosing plan for each patient, and every retina, based on what can be seen. Data from a patient's OCT scan and other associated healthcare fields will be drawn upon during the process.

AI Empowerment
Novartis/Microsoft strategic alliance allows us to empower our associates across all of our businesses with the capability of AI by making it accessible to all, regardless of their knowledge of data science. This way, we create a new crop of citizen data scientists who are able to utilize AI as they unlock valuable new insights from our rich and diverse store of data. The lab will aim to bring the power of AI to the desktop of every Novartis associate. By bringing together vast amounts of Novartis datasets with Microsoft's advanced AI solutions, the lab will aim to create new AI models and applications that can augment our associates' capabilities to take on the next wave of challenges in medicine.

FEATURED FIRM: NOVARTIS AG (NYSE: NVS)

NOVARTIS (NYSE: NVS) Novartis AG is a holding company, which provides healthcare solutions. The Company is engaged in the research, development, manufacturing and marketing of a range of healthcare products led by pharmaceuticals. The Company's segments include Innovative Medicines, Sandoz, Alcon and Corporate activities.

- Innovative Medicines researches, develops, manufactures, distributes and sells patented prescription medicines to develop health outcomes for patients and healthcare providers.

- Sandoz develops, manufactures, distributes and sells prescription medicines, as well as pharmaceutical active substances that are not protected by valid and enforceable third-party patents.

- Alcon researches, develops, manufactures, distributes and sells eye care products. Alcon is a provider of eye care with product offerings in eye care devices and vision care. The Company's range of products includes pharmaceuticals and oncology medicines, generic and biosimilar medicines, and eye care devices.

In 2018, NVS generated $53.166 billion in annual revenue. Currently, the NVS market cap is approximately $230.23 billion with a headcount of roughly 130,000 employees.

BIOGRAPHY OF SPEAKER: DR. SHAHRAM EBADOLLAHI OF NOVARTIS

Dr. Shahram Ebadollahi is the Global Head of Data Science and AI at Novartis. He is responsible for both defining the strategy and overseeing the operations for applications of data science and A.I. across the value chain, from early discovery to manufacturing across Novartis.

Before joining Novartis in September of 2018, Dr. Ebadollahi spent 14 years with IBM and had series of senior executive roles. He was the technical founder of IBM Watson Health, IBM's first ever business focused on applications of technology and AI to the domain of healthcare and life sciences. In that role, he oversaw innovations, development, and served as the chief science officer of IBM in the area of healthcare. Prior to starting IBM Watson Health, he had started the health informatics research and computational health, with the aim of innovating and applying data-driven and knowledge-driven advanced analytics and A.I. to the broad domain of healthcare and life sciences. As the Vice President of Health Informatics Research, he oversaw a global team of scientists and innovators in this domain.

Dr. Ebadollahi has a PhD and MBA from Columbia University and is a member of a number of scientific and business advisory boards at the intersection of technology innovation, data science and novel business models with focus in the domain of healthcare and life sciences. He has published and overseen graduate level research in the area of analytics for healthcare and has conducted research with funding from national institutions such as NIH. He is a frequent speaker and panelist at events at the intersection of technology innovation and healthcare.

SCHEDULE:

- 6:00 – 6:30 pm Registration & Networking

- 6:30 - 6:45 pm Introductions - (Welcome Remarks)

- 6:45 - 7:45 pm Presentation & Open Discussion - (Roundtable Discussion)

- 7:45 - 8:00 pm Concluding Statements - (Closing Remarks)

- 8:00 – 9:00 pm Private Reception & Networking

OUR PURPOSE:

>> Stay Relevant.

- How can you harness artificial intelligence (AI) solutions to an array of thorny problems? How do you further intertwine medicine with technology whilst keeping the human patient experience at the core? Are there new broadened roles emerging for that of the data-driven shareholder, the medical practitioner and the (empowered or overwhelmed) patient? Our speaker is tackling these questions at one of the most influential pharmaceutical firms: Novartis AG.

>> Access the Future.

- Rare diseases treated with cost-effective drugs and therapies? A drug optimally designed for your specific genome? Gene therapies to improve our resistance to common ailments? A healthcare system made more humane and transparent through artificial intelligence? The future of healthcare is as promising as it is nerve-wracking.

OUR PARTICIPANTS:

Columbia Innovation Roundtable – an independent affiliate of the Columbia University Alumni Club – invites you to experience our distinctive innovation-focused, private, invitation-only executive roundtables. Join Columbia University alumni, faculty and select VIP industry executives, investors and innovators for a stimulating discussion on **Healthcare: AI in Medicine.**

OUR SHARED VALUES:

- **L**imited - Each roundtable is unique and limited to a total of less than 25 invited members

- **I**nteractive - Active participation by each member enhances our collective perspective

- **O**ff-the-Record - All discussions are strictly off-the-record and confidential

- **N**on-Solicitation - No solicitation or investment pitches are permitted

EVENT DETAILS:

Columbia Innovation Roundtable

Address:
Cooley Law
55 Hudson Yards
New York, NY 10001

Date:
Tuesday, November 26, 2019

Theme:
AI in Medicine: The Helix of Data Sciences, Healthcare and Human Capital.

To request an invitation, please email
oa2142@Columbia.edu