ENTERING THE AI HEALTHCARE ERA

JP Morgan 2021 | Kimberly Powell VP, GM Healthcare
SAFE HARBOR

Forward-Looking Statements

Except for the historical information contained herein, certain matters in this presentation including, but not limited to, statements as to: the performance, benefits, abilities, availability and impact of our products and technologies; TAMs, market sizes and market spend; artificial intelligence being the most powerful technology force of our time; how artificial intelligence is used; Cambridge-1; the adoption of our technologies; AI healthcare startups; enabling the AI healthcare era; our markets; and our growth and growth drivers are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements and any other forward-looking statements that go beyond historical facts that are made in this presentation are subject to risks and uncertainties that may cause actual results to differ materially. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners’ products; design, manufacturing or software defects; changes in consumer preferences and demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems and other factors.

NVIDIA has based these forward-looking statements largely on its current expectations and projections about future events and trends that it believes may affect its financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks and uncertainties, and you should not rely upon the forward-looking statements as predictions of future events. The future events and trends discussed in this presentation may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Although NVIDIA believes that the expectations reflected in the forward-looking statements are reasonable, the company cannot guarantee that future results, levels of activity, performance, achievements or events and circumstances reflected in the forward-looking statements will occur. Except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances. For a complete discussion of factors that could materially affect our financial results and operations, please refer to the reports we file from time to time with the SEC, including our Annual Report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports we file with the SEC are posted on our website and are available from NVIDIA without charge.
ADVANCING DRUG DISCOVERY THROUGH COMPUTING

$1.25T Industry | $2B R&D per Drug | 12 Years Development | 90% Failure Rate

Chemical Compounds

SEARCH

Disease Target

Drug Candidate

GENOMICS

STRUCTURE

DOCKING

SIMULATION

IMAGING

Literature

Real World Data

NLP
ARTIFICIAL INTELLIGENCE — THE MOST POWERFUL TECHNOLOGY FORCE OF OUR TIME

GENETIC VARIANT DETECTION
Deep Learning Variant Calling
NVIDIA Clara & Google DeepVariant

PROTEIN STRUCTURE PREDICTION
Experimental Accuracy
Google AlphaFold

BIOMEDICAL & CLINICAL NLP
State-of-the-Art Language Model
NVIDIA BioMegatron BioBERT

VIRTUAL DRUG SCREENING
Docking 40B Compounds
UBC DeepDocking

DRUG DISCOVERY
1,000X Faster Simulations
Caltech OrbNet

COMPUTATIONAL MICROSCOPE
Atomic Molecular Simulation
UCSD NAMD & ANL DeepDrive MD

COMPUTATIONAL DEMAND FOR AI DRIVEN DRUG DISCOVERY
(petaFLOPS per organization)*

*Source: NVIDIA estimated - assumes a computational pipeline that identifies 10 disease targets, screens 1M compounds per target (inc. virtual & HCS) and 500 simulations per target.
NVIDIA CLARA
DOMAIN SPECIFIC COMPUTATIONAL PLATFORM FOR HEALTHCARE

Pre-trained models:
- Chemistry
- Genomics
- Imaging
- Biomedical NLP

Training framework:
- MONAI
- PyTorch

Federated learning

Scalable deployment:
- TRITON Inference Server

NVIDIA computing platforms:
- Cloud
- Data center
- Edge
- Embedded

Digital Health Data

Algorithms & Compute

Automated Skills

Radiology
Pathology
Surgical

Patient monitoring
Genomics
Decision support
NVIDIA CLARA
COMPUTATIONAL PLATFORM FOR HEALTHCARE

GENOMICS
NLP
IMAGING
INSTRUMENTS
CONVERSATIONAL AI
DRUG DISCOVERY

5X 125K Downloads
1,000+ NVIDIA Inception AI Healthcare Startups
500K NVIDIA GPU Instruments Deployed
INTRODUCING NVIDIA CLARA DISCOVERY
AI Computational Drug Discovery: Frameworks, Applications, Algorithms

- GENOMICS: Clara Parabricks, RAPIDS
- STRUCTURE: CryoSPARC, Relion, AlphaFold
- DOCKING: RAPIDS
- SIMULATION: NAMD, VMD, OpenMM, MELD
- IMAGING: Clara Imaging, MONAI
- Chemical Compounds
- Disease Target
- Drug Candidate
- Literature
- Real World Data
- NLP: BioNLP, BioDBNet
AI DRIVEN DRUG DISCOVERY
World Leaders Using GPU Accelerated Computing & AI for Drug Discovery

Above organizations focus is broader than the GPU reference applications shown.
CAMBRIDGE-1 AI SUPERCOMPUTER
Computational Instrument for AI Healthcare

AstraZeneca | NHS | gsk | KING'S COLLEGE LONDON | NANOPORE

80 NVIDIA DGX A100 | 400 PETAFLOPS AI COMPUTE | UK'S FASTEST AI SUPERCOMPUTER | WORLD'S TOP 5 GREEN SUPERCOMPUTER

HEALTHCARE & LIFE SCIENCE RESEARCH
LARGE-SCALE AI & DATA SCIENCE RESEARCH
COLLABORATION WITH UK INDUSTRY, UNIVERSITIES, STARTUPS
EDUCATE FUTURE AI PRACTITIONERS
AI HEALTHCARE STARTUPS MAKE HISTORY IN 2020
Record Year of Funding | Dozens of Industry Firsts

Healthcare AI Startup Funding by Quarter*

- $5.5 B
- $3.5 B
- $1.5 B

2019
2020**

AI Training | Early Access
Tech Integration | Industry Alliance

INCEPTION PROGRAM

2017
2020

273
1,095

*Source: CB Insights: State Of Healthcare Q120 Report: Investment & Sector Trends to Watch
**Estimated

Digital Health
Imaging & Instruments
Drug Discovery

babylo
ACTIV
eaton
CURAI
caption health
healtx
nference
HURON
HYPERFINE
OWKIN
TEMPUS
Recursion
YITU
st.ai
UNLEARN
AI IN THE PRACTICE OF MEDICINE

Healthcare Spend $8T | Aging & Growing Population | Chronic Disease | Prevention

AI Papers in PubMed (Machine Learning or Deep Learning)

2020
2015
2010

AI Healthcare Research
Continuous Learning -> Software Defined
AI Skills

DEVELOP

DEPLOY

AI MODEL

RADIOLOGY
PATHOLOGY
SURGICAL
PATIENT MONITORING
GENOMICS
DECISION SUPPORT
SOFTWARE DEFINED
AI INSTRUMENT REVOLUTION

Sensing | Predicting | Assisting

NVIDIA COMPUTE PLATFORMS

CLOUD  DATA CENTER
EDGE  EMBEDDED
ANNOUNCING
OXFORD NANOPORE TECHNOLOGIES ADOPTS NVIDIA DGX FOR ULTRA-HIGH THROUGHPUT PROMETHION
Real-Time Sequencing, AI Driven Accuracy

High Throughput up to 10 Terabases | 100 Human Genomes per Run
Deep Learning Basecaller “Bonito” 98.3% Raw Accuracy
AI Driven Single Nucleotide Variant Calling 99.9% Accuracy
COVID-19 Testing | Viral Sequencing
Human Genetics | Cancer Research

![AI Sequencing Accuracy Chart]

Models & Training
Deep Learning

Deep Learning