Building Partnerships for Team Science in Data Analytics: Strategic Planning for the Translational Data Analytics Institute

Raghu Machiraju, PhD
Interim Faculty Director

Cathie Smith, PhD
Managing Director

The Ohio State University
April 12, 2019
Vision
To establish the state of Ohio as a global hub for development, application and study of translational data analytics solutions.

Mission
To create and apply data analytics solutions to issues of global importance in partnership with the external community, while advancing foundational data science theories and methods.

Goals
To create a highly differentiated and impactful brand that is recognized as...

... A top 5 institute for data science and analytics research/innovation nationally, differentiated by an emphasis on translational outcomes and a central, cross-cutting presence on campus that supports a diverse intellectual community.

... A regional hub of workforce development and innovative academic programs in data science and analytics.

... An active partner with external stakeholders in ventures that strongly align with Ohio State’s land grant agenda.

... A model for sustainability and operational efficiency.
Communities of Practice

TRANSLATIONAL DATA ANALYTICS INSTITUTE

THE OHIO STATE UNIVERSITY
Partnerships

TRANSLATIONAL DATA ANALYTICS INSTITUTE

THE OHIO STATE UNIVERSITY
TDAI Communities of Practice

**Computational Health and Life Sciences**
- Faculty in Residence
  - Shili Lin, Statistics
- The Mix
  - 12 departments from 8 colleges represented

**Computational Social Sciences**
- Faculty in Residence
  - Bear Braumoeller, Political Science
  - David Melamed, Sociology
- The Mix
  - 30 departments from 9 colleges represented

**Foundations of Data Science**
- Faculty in Residence
  - Tamal Dey, Computer Science & Engineering
  - Yusu Wang, Computer Science & Engineering
- The Mix
  - 12 departments from 5 colleges represented

**Smart and Connected Cities and Distributed Sensing**
- Faculty in Residence
  - Anish Arora, Computer Science & Engineering
- The Mix
  - 40 departments from 11 colleges represented
Enabling Activities

- 56 faculty hires
- Communities of practice
- Convening events
- Seed grants
- Faculty exchange program
- New assets
  - Data commons
  - Team work spaces
- Processes
  - Strategic doing/brainstorming
  - Win strategy development
  - Proposal development

Partnerships

Internal
- ACCAD
- Colleges
- Ohio Supercomputer Center
- Smart OSU
- University Libraries

External
- Data Science Leadership Summit
- HPE – Aruba Networks
- Nagoya University
- NSF Translational Data Science Workshops
- NSF Midwest Big Data Hub
- Smart Columbus
### TDAI Team Science: Outcomes by the Numbers

<table>
<thead>
<tr>
<th>Funding Amount</th>
<th>Description</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$68 million</strong></td>
<td>NIH HEAL grant submitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners include:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28 OSU faculty in 4 colleges</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alliance Recovery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case Western Reserve University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nationwide Children’s Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Office of the Governor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agencies in 19 Ohio Counties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ohio Hospital Association</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ohio University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 State of Ohio Departments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Cincinnati</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Toledo</td>
<td></td>
</tr>
<tr>
<td><strong>$10 million</strong></td>
<td>NSF Expeditions grant submitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACCAD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CEMAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colleges of Arts and Sciences, Engineering, Medicine, and Optometry</td>
<td></td>
</tr>
<tr>
<td><strong>$4.5 million</strong></td>
<td>CCRI grant submitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colleges of Arts and Sciences and Engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ohio Supercomputer Center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wexner Medical Center</td>
<td></td>
</tr>
<tr>
<td><strong>$1 million</strong></td>
<td>NSF HDR grant submitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Columbus State University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Michigan State University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shawnee State University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Ohio State University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Michigan</td>
<td></td>
</tr>
<tr>
<td><strong>$1.8 million</strong></td>
<td>DoD grant received</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Purdue University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stanford University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stanford Research Institute</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Walter Reed Memorial Hospital</td>
<td></td>
</tr>
<tr>
<td><strong>$5.6 million</strong></td>
<td>MRI grant submitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Major Research Instrumentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colleges of Engineering and Medicine</td>
<td></td>
</tr>
<tr>
<td><strong>$5 million</strong></td>
<td>prequalification won for future State of Ohio task orders; one of only two of the 82 applicants to win all 14 domains</td>
<td>60 faculty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 centers and labs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 industry partners</td>
</tr>
<tr>
<td><strong>$1 million</strong></td>
<td>NSF Spoke grant received</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Partners</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cover My Meds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hewlett Packard Enterprise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nationwide Children’s Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tableau</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Chicago</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wright State University</td>
<td></td>
</tr>
<tr>
<td><strong>$900,000</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Professional Science Master’s Degree
Launching fall 2020

Faculty in Residence
Dorinda Gallant (Educ. Studies)
Raghu Machiraju (CSE)
Mario Peruggia (Statistics)
Joyce Wang (Communication)

Partnerships

Internal Partners
ACCAD
Departments of Design, Computer Science and Engineering, Statistics
College of Nursing
Graduate School

External Partners
Abercrombie & Fitch
Accenture
Alliance Data
Air Force Research Laboratory
Aruba
Aver
Battelle
Business – Higher Education Forum
Cardinal Health
CDW-G
Cherry Advisory
CoverMyMeds
Dell
DSW Inc

Ford
Grange Insurance
Hewlett Packard Enterprise
HPE - DXC Technology
Honda
IBM
ICC
IGS Energy
JobsOhio
Kroger Technology
Metis
Midwest Big Data Hub
Nationwide Insurance
Ohio Department of Education (ODE)
Ohio Department of Health (ODH)
Ohio Developmental Services Agency
Pillar Technology
PwC
The J.M. Smucker Company
The Wendy’s Company
Wexner Medical Center
TDAI Future State

1. Become the interface for partners to collaborate with faculty teams and access a workforce pipeline.
2. Advance team science and scholarship with translational impact.
3. Develop academic and training programs in data science and analytics.
4. Develop a workforce pipeline in data science and analytics and train educators.
5. Grow founding partnerships that support TDAI while advancing research, learning and outreach.