

Workshop II

Defining the Computer Science in Biomedical Informatics

Opportunities for CS Research in Biomedical Domains

Sethuraman (Panch) Panchanathan
School of Computing and Informatics
Arizona State University

Introduction

Edward Shortliffe, MD., Ph.D (Stanford)

- **Professor of Basic Medical Sciences, UACOM-Phoenix Campus**
- **Professor of Medicine (General Internal Medicine), UACOM**
- **Professor of Biomedical Informatics, Arizona State University**
- **Editor-in-Chief, Journal of Biomedical Informatics.**
- **Past Chair of the Department of Biomedical Informatics at Columbia U**
- **Past Professor of Medicine and of Computer Science at Stanford**
- **Member of the Institute of Medicine of the NAS**
- **Fellow of ACMI and AAAI**
- **Books including , Biomedical Informatics: Computer Applications in Health Care and Biomedicine, with J.J. Cimino, Springer, 2006**
- **Lifetime Achievement award from AMIA**

Introduction

Peter Szolovits, Ph.D (CalTech)

- **Professor of Computer Science and Engineering at MIT**
- **Professor of Health Sciences and Technology in the Harvard/MIT Division of Health Sciences and Technology, (HST),**
- **Head of the Clinical Decision-Making Group within the MIT CSAIL.**
- **Member of the Institute of Medicine of the NAS**
- **Fellow of ACMI, AAAI, AIMBE**
- **Founder of and consultant for several companies that apply AI to problems of commercial interest**

Introduction

Atul Butte, MD., Ph.D (Harvard/MIT)

- **Assistant Professor in Medicine (Medical Informatics) and Pediatrics at the Stanford University School of Medicine and the Lucile Packard Children's Hospital, and a board-certified pediatric endocrinologist. Also Assistant Professor in CS .**
- **Several stints as a software engineer at Apple Computer (on the System 7 team) and Microsoft Corporation (on the Excel team).**
- **Recipient of several awards including:**
 - **2007 Genome Technology "Tomorrow's Principal Investigator" Award**
 - **2006 Howard Hughes Medical Institute Early Career Award**
 - **2006 PhRMA Foundation Research Starter Grant in Informatics**
 - **2002 and 2003 American Association for Clinical Chemistry Outstanding Speaker Award**
 - **2001 Lawson Wilkins Pediatric Endocrine Society Clinical Scholar Award.**

BMI Journey at ASU

- **ASU President Michael Crow's Initiative.**
- **Creation of a U of A Medical School Campus in Phoenix partnership with ASU.**
- **State (Governor) and City (Mayor) involved.**
- **Task Force and External Advisory Board**
- **Approvals, Faculty Hiring, Curriculum and Program Launch in 2 years**
- **12 faculty and 15 Affiliate/Adjunct Faculty**
- **MS (2007), Ph.D. (2008) and BS (2009)**

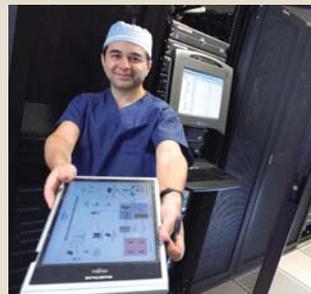
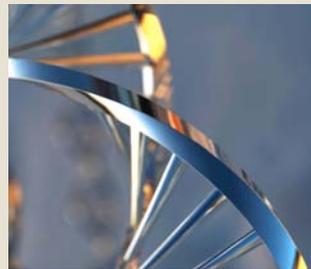


School of Computing and Informatics

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AND ENGINEERING**



**DEPARTMENT OF
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INFORMATICS**



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PROGRAMS**



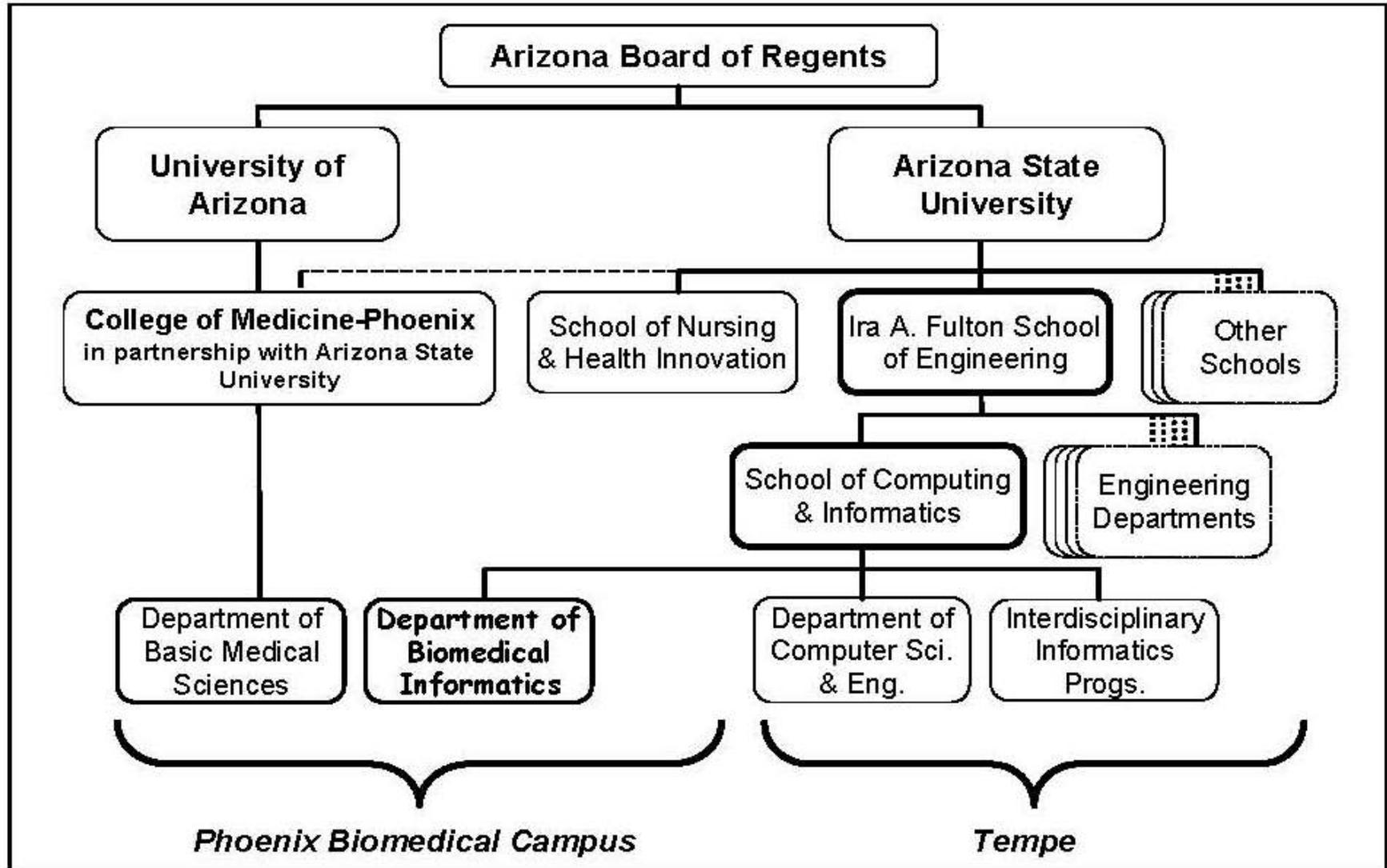


Brickyard on Mill



**Arizona Biomedical
Collaborative I**

ASU-UA



BMI Research Foci

Bioinformatics

**Imaging
Informatics**

**Clinical
Informatics**

**Public Health
Informatics**

Cognition and Decision Making

Data Mining/Predictive Modeling

NLP/AI/Structured Knowledge Representation

Embedded Systems

Collaboration Technologies & Methods

BMI Faculty



Robert A. Greenes, MD, Ph.D
Ira A. Fulton Chair
Member, National Academy of Sciences
(from Harvard University)



Vimla Patel, Ph.D, D.Sc.
Vice Chair
Member, National Academy of Sciences
(from Columbia University)



William Johnson, Ph.D.
Director, Center for Health
Information and Research



Edward H. Shortliffe, MD, Ph.D
Professor and Founding Dean UACOM
Member, National Academy of Sciences



Doug Fridsma, MD, Ph.D
Assistant Professor
(from Univ. of Pittsburgh)



Trevor Cohen, MD, Ph.D
Assistant Professor
(from Columbia University)



Valentin Dinu, Ph.D.
Assistant Professor
(from Yale University)

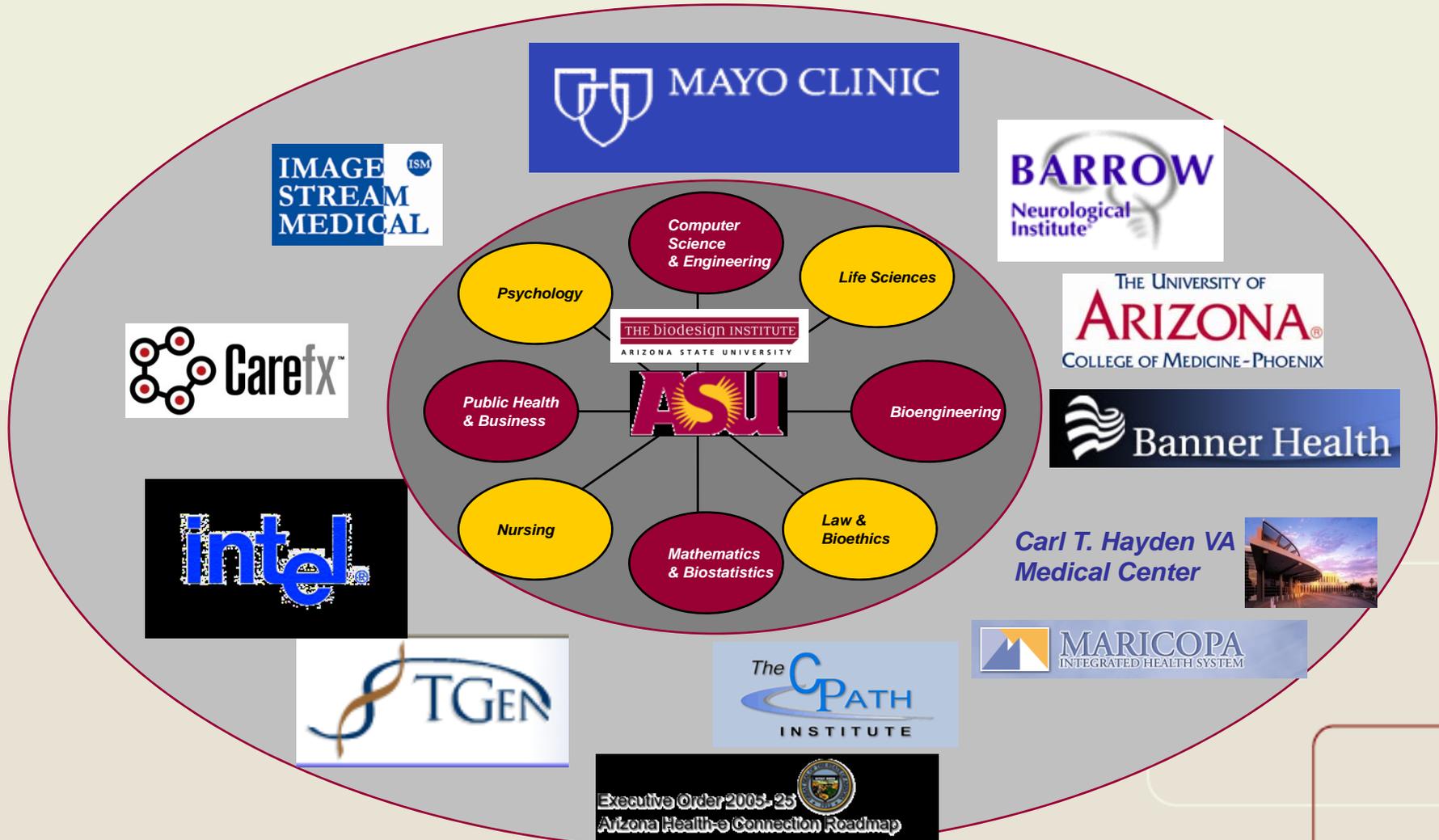


Shu-Chuan Chen, Ph.D
Assistant Professor
(joint with Mathematics & Statistics)



Kanav Kahol, Ph.D
Assistant Professor
(joint with Banner)

BMI Collaborators



Biomedical Informatics in the Desert - A New and Unique Program at Arizona State University

R. A. Greenes, S. Panchanathan, V. Patel, H. Silverman, E. H. Shortliffe

Department of Biomedical Informatics, Arizona State University and
University of Arizona College of Medicine, Phoenix, in partnership with Arizona State University

Summary

Objectives: A new academic Biomedical Informatics (BMI) Program in Phoenix, Arizona, embodies a unique organizational structure to draw on the strengths of a computer science and informatics school and the biomedical and clinical strengths of a college of medicine, in an effort to infuse informatics approaches broadly.

Methods: The program reflects a partnership of two state universities that situates the Arizona State University (ASU) Department of BMI on a new downtown Phoenix Biomedical Campus with the University of Arizona (UA) College of Medicine in partnership with ASU (COM-PHX). Plans call for development of faculty and expertise in the four major subdomains of BMI, as well as in various cross-cutting capabilities.

Results: Coming into existence in a state that is investing

1. Introduction

The Arizona State University (ASU) Department of Biomedical Informatics (BMI) is one of the newest departments of BMI in the world - as of this writing being less than one year old. It also has the distinction of being unique in its conception, the organizational framework in which it is embedded, its constituency, and hence its mission. Arizona is one of the youngest states in the United States, and one of the most rapidly growing. Phoenix, the capital of Arizona, has ex-

cent dramatic growth and change in the nature of ASU is one of the most visible manifestations of this situation. Although ASU has long been one of the largest universities in the United States, it has in the last 5-6 years embarked on a path to become a leader in education and research, alongside its more well-known sister institution, the University of Arizona (UA). Led by President Michael Crow since 2002, ASU has espoused goals for the "New American University" [1] including intellectual fusion, social em-