The AMBI is an interdisciplinary group seeking innovative ways to:
Diagnose, Prevent, and Delay natural or disease-related cognitive,
functional, mental decline with aging
Aging Mind and Brain Initiative (AMBI)

MISSION

The Aging Mind and Brain Initiative continues to seek innovative and interdisciplinary methods for the diagnosis and prevention of the disorders of aging that incur cognitive or functional decline.

VISION

Campus-wide integration of world-class brain research programs that are charged with tackling the diseases of aging in partnership with the expertise of newly hired faculty.

Dopamine neurons in the midbrain that die in Parkinson’s Disease – (Kumar Narayanan)
"No other force is likely to shape the future of national economic health, public finances and policy-making than the irreversible rate at which the world population is aging."

Global Aging Report

By the year 2050, the US will have 600,000 centenarians, compared to 53,000 today.

2010 US Census Report
LEADERSHIP

Susan K. Schultz, MD
Director
UI Aging Mind and Brain Initiative
and UI Center on Aging
Professor of Psychiatry and Internal Medicine
Carver College of Medicine

Bernd Fritzsch, MS, PhD
Co-Director
UI Aging Mind and Brain Initiative
and UI Center on Aging
Professor of Biology and Otolaryngology
College of Liberal Arts & Sciences

NEW FACULTY

Kanika Arora, PhD
Assistant Professor
Health Management and Policy
College of Public Health
Long-term care, family and social welfare
policy and research methods

Wen Liu, PhD
Assistant Professor
College of Nursing
Eating performance and mealtime
difficulties in dementia, functional
abilities in the elderly, long-term
care, measurements and statistics

Jan Wessel, PhD
Assistant Professor
Psychology and Neurology
College of Liberal Arts & Sciences
and Carver College of Medicine
Neural mechanisms underlying
monitoring and adaptation of
ongoing behavior and cognition

ONGOING SEARCHES

■ Biology, College of Liberal Arts & Sciences
■ Neurology, Carver College of Medicine
CURRENT FACULTY

Sato Ashida, PhD
Assistant Professor
Community & Behavioral Health
College of Public Health
Social factors in aging and health

Octav Chipara, PhD
Assistant Professor
Computer Science
College of Liberal Arts & Sciences
Mobile health systems

Mathews Jacob, PhD
Associate Professor
Electrical Engineering & Computer Engineering
College of Engineering
Image processing MR Imaging

John Kamholz, PhD
Professor
Neurology
Carver College of Medicine
Regulation and structure of myelin

Kumar Narayanan, MD, PhD
Assistant Professor
Neurology
Carver College of Medicine
Cognitive symptoms of Parkinson's Disease

Priya Pennathur, PhD
Assistant Professor
Mechanical and Industrial Engineering
College of Engineering
Understanding cognitive artifacts

Veena Prahlad, PhD
Assistant Professor
Biology
College of Liberal Arts & Sciences
Neuronal control of cellular stress responses

Michelle Voss, PhD
Assistant Professor
Psychology
College of Liberal Arts & Sciences
The neuroscience of aging

Kristine Williams, PhD
Sally Mathis Hartwig
Professor of Gerontological Nursing
College of Nursing
Communication and the elderly
MAJOR RESEARCH ACCOMPLISHMENTS

- In FY15, AMBI Faculty have 21 funded grants as Principal Investigator for a total of $3,654,721 from organizations such as NIH, NSF, DOD, IDHS, Ellison Medical Foundation, Brain & Behavior Research Foundation, Retirement Research Foundation, American Cancer Society, as well as internal funding initiatives.

- AMBI Faculty participate in grants as co-investigators or multi-PI investigators on seven additional grants totaling $4,201,610.

- There are an additional 25 grants pending for a total of $3,509,345 in direct costs.

- All AMBI faculty have obtained independent funding of some type since their arrival at the University of Iowa.

PUBLICATIONS BY AMBI FACULTY AND LEADERSHIP SINCE 2011

<table>
<thead>
<tr>
<th>AMBI Faculty</th>
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<tr>
<td>Sato Ashida</td>
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<td>Octav Chipara</td>
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<td>Matthews Jacob</td>
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<td>John Kamholz</td>
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<td>Nandakumar Narayanan</td>
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<td>Priyadarshini Pennathur</td>
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<td>Veena Prahlad</td>
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<td>Michelle Voss</td>
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<td>Kristine Williams</td>
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<td><strong>TOTAL</strong></td>
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<td>Steven Anderson</td>
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<td>Gary Christensen</td>
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<td>Bernd Fritzsch</td>
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<td>Keela Herr</td>
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<td>Gerald Jogerst</td>
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<td>Brian Kaskie</td>
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<td>Vincent Magnotta</td>
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<td>Jodie Plumert</td>
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<td>Susan Schultz</td>
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<tr>
<td>Christopher Atchison</td>
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<tr>
<td>Kathleen Buckwalter</td>
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<td>Peter Damiano</td>
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<td>Robert Philibert</td>
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<td>Jean Robillard</td>
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<td>Robert Wallace</td>
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<th>External Advisory Committee</th>
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<td>Brian Kennedy (Buck Institute)</td>
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<td>Philip Pizzo (Stanford University)</td>
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<td>John Renger (Merck)</td>
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<td><strong>TOTAL</strong></td>
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COMMUNITY AND STATEWIDE ENGAGEMENT

- Johnson County COAD (Community Organization Active in Disaster) and the local United Way—proposal to the Retirement Research Foundation (Ashida).
- Midlife and Beyond outreach program with the Iowa State Extension and Outreach offices.
- Johnson County Task Force on Aging, Johnson County Elderly Consortium, Johnson County Senior Center, and Heritage Area Agency on Aging.
- Senior Center of Johnson County Lecture Series on Hearing, Gait, Falling and Healthy Mobility with Age, Spring 2015.
- Highland Ridge community, Pioneer Place, Methwick Active Retirement Community—provided community lectures on dementia.
- Fraternal Order of Eagles—engagement on a project supporting dementia presentations at local aeries and state-wide convention.
- Board of Directors of the East Central Iowa Alzheimer’s Association.

FACULTY PRESENTATIONS

AMBI faculty have given numerous presentations for various groups and have been invited speakers at meetings such as the American Public Health Association, Gerontological Society of America, Midwest Nursing Research Society, American Neurological Association and many others.

SEMINARS AND SYMPOSIUM

- The Brain in Motion: Movement and Musculoskeletal Connection to Brain Resilience, April 2015.
- Mechanisms of Aging and Neurodegeneration, December 2013 (Lee, Fritzsch, Prahlad, Narayanan)
- The Aging Mind & Brain at Work: Legal and Ethical Perspectives, October 2013.
- Dementia Care, September 2013 (Buckwalter, Williams, Smith)
- In Search of the Neural Circuitry and Mechanisms Underlying HPA Axis and Alterations in Aging, May 2013 (Radley)
- Neurotechnology—Driven Adaptive Systems, March 2013 (Joint with Obermann Center—Michael Dorneich, ISU)
- Brain Matters: First Annual Aging Mind and Brain Symposium, April 2012.
UNIVERSITY INITIATIVES AND INTERACTIONS

The AMBI Faculty have formed many collaborations, not only amongst themselves, but also with many investigators both inside and outside the University of Iowa. Examples include:

- Ashida: PRC-RH (Research Core Faculty)—established collaborations with faculty at Iowa (Williams) resulting in one publication and one under review. Also discussing proposal development with Drs. Carnahan and Weckman with partnering with Heritage Area Agency on Aging.

- Narayanan: Prahlad, Fairley, Peiper, Uc, Wemmie, Davison, Greenlee, and Richerson—basic and clinical work with Parkinson’s and other brain disorders.

- Williams and Ashida: Multiple grants involving improving nursing home and caretaker communication with the elderly.

- Voss and Magnotta: Development of an interactive advanced methods class for applications of MRI and FMRI.


- Chipara, Reed, Anderson, Wu, Page, Aksan: Developing systems that use sensors and other mechanisms to addressed real world problems related to monitoring and communication problems.

- Conceptualizing new programs by attracting non-traditional older students to develop “second careers” based on the Stanford Distinguished Career Institute.
We are pleased to report that we have successfully recruited three new faculty who will be joining this academic year:

- Kanika Arora PhD, CPH with an emphasis on Long-term care, family and social welfare policy,
- Wen Liu PhD, CON, studying functional abilities in dementia in long-term care.
- Jan Wessel PhD, CLAS, examining neural mechanisms underlying monitoring and adaption of behavior and cognition. We are actively seeking talented new faculty for open AMBI positions in CLAS Biology and CCOM Neurology.

In recognition that the Global Aging Report has noted that “No other force is likely to shape the future of national economic health, public finances and policy-making than the irreversible rate at which the world population is aging” the AMBI team has assembled to date an exemplary team of investigators across the following areas: Social factors in aging and health (Ashida, CPH), Mobile and e-Health systems (Chipara, CLAS), Neuroimaging processing and MR imaging (Jacob, COE), Cognitive symptoms of Parkinson’s disease (Narayanan, CCOM), Understanding cognitive artifacts in aging (Pennathur, COE), Neuronal control of cellular stress responses (Prahlad, CLAS), Communication in elderly caregiving (Williams, CON), Neuroscience of aging (Voss, CLAS), Regulation and structure of myelin in neurodegeneration (Kamholz, CCOM).
THE FUTURE

Our goal is for AMBI to continue to gain recognition as a comprehensive center that is truly translational to the community through the integration of the AMBI with geriatric education and clinical care. We have successfully assembled the chapters for a comprehensive text: The Wiley Handbook on the Aging Mind and Brain, publication expected in 2015/16, and to date we have applied for a HRSA “Geriatric Workforce Enhancement Program” grant and contributed to the geriatric “special population” section of the CCOM CTSA grant. Further collaborations will address new initiatives such as neuroplasticity, “Smart and Connected Health” funding for gait and balance disorders and designing a program recruiting non-traditional older students for lifelong learning inspired by our Parkin lecture speaker, P. Pizzo. In addition:

■ Further integration with other researchers with expertise in age-related areas both within the University of Iowa as well as at other institutions

■ Expand our work with local, state and national organizations

■ Become a community resource by expanding our outreach and communication efforts

■ Continue to develop our faculty and complete the hiring of the remaining faculty positions

■ Bring our findings and solutions to the aging population

■ Gain recognition has a comprehensive center that is truly translational to the community through the integration of the AMBI with geriatric education and clinical care.