CHAI:

Center for Human-Aware Artificial Intelligence

An RIT Research Center of Excellence

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Dhireesha Kudithipudi (Director)
Cecilia O. Alm
Reynold Bailey
Matt Huenerfauth
Christopher Kanan (Associate Director)
Ray Ptucha
Ferat Sahin
Andreas Savakis

I. Introduction

This document describes the charter for RIT's Center for Human-Aware Artificial Intelligence (CHAI). CHAI's goal is to propel RIT forward in the following ways:

1. to advance research in AI;
2. to grow AI research output and investment at scale;
3. to be a magnet for attracting top-tier faculty and graduate students in AI;
4. to increase collaboration within RIT;
5. to position RIT to participate in AI's Grand Challenges.

In the context of CHAI, we define Artificial Intelligence as the activity devoted to making machines intelligent.

The center's vision:

To improve the quality of human life with breakthrough research in AI and to comprehensively equip future AI practitioners and scientists.

The center's mission:

The RIT Center for Human-Aware Artificial Intelligence will:

1. Conduct transformative research on computing systems capable of tasks that ordinarily require human intelligence or that enable humans to perform optimally;
2. Work toward the development of AI computing systems that are continually learning, trustworthy, and capable of solving complex tasks with minimal resources.

The Center's Core Research Strengths

As AI technologies increase in efficacy and reliability, their application throughout society has become even more pervasive. However, this increases the need for researchers and practitioners in AI to be ***human-aware***, i.e., to consider the societal and ethical implications of their work, to examine the requirements and needs of the human users of AI-based systems, to investigate how AI can collaborate effectively with humans in multiple domains, and to study human cognitive and perceptual processes as inspiration for new AI innovations. To grow RIT's research and educational capacity in these domains, CHAI will engage in state-of-the-art research, to contribute to and rapidly adopt the latest advances.

Our unique assets include transdisciplinary theoretical foundations, diverse technical backgrounds, and applied domain expertise. The center's four focus areas are highlighted in Figure 1:

- **Brain-Inspired Computing (*aka* Neuromorphic Computing):** Can our understanding of neural processing and perception lead to new AI algorithms and hardware advances? How can we design brain-inspired cognitive assistants that use minimal energy?
- **Machine Learning and Perception:** How can we extend and transform AI methods to address challenging tasks in natural language, visual understanding, and multi-modal data?

- **Automation and Robotics:** How can AI technologies lead to innovations and efficiencies in domains where intelligent systems or robots collaborate in future workplaces?
- **Human-Centered AI:** How can we develop and design usable AI-based cognitive technologies for interacting with human users, including understanding behavior, experiences, and negotiating users' trust?

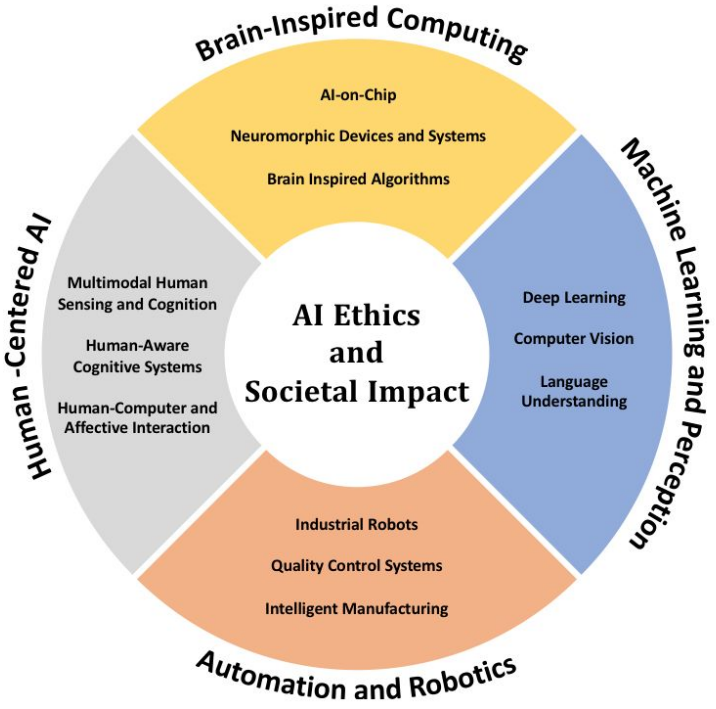

Figure 1: Four areas of research strength of CHAI

These areas build on national priorities for AI, RIT faculty expertise, and tremendous on-campus interest evidenced by the 2017 RIT Move78 Retreat, which brought together close to 300 faculty and students, and the weekly RIT AI seminar series which regularly attracts 50 attendees. CHAI will enhance collaboration, optimize resources, enhance transmittal of ideas, and foster a culture of AI research among faculty and students. Integrating faculty engaged in AI research from across RIT colleges, in the first year the center will launch seed projects leveraging RIT's expertise in the CHAI's four focus research areas. These projects will develop and apply AI to address society's most vexing challenges and cultivate transformational discoveries. For example, one of the problems that the center is strategically poised to address is the Office of Science and Technology Policy grand challenge to "[c]reate a new type of computer that can proactively interpret and learn from data, solve unfamiliar problems using what it has learned, and operate with the energy efficiency of the human brain."[1]

[1] https://www.nano.gov/grandchallenges

II. Center Organization

As the center grows in the coming years we envision a structure approximating the one shown in Figure 2, where the key stakeholders are:

- Director: The director is a recognized senior research member who is active in one or more of the CHAI's research pillars, a tenured faculty member at RIT, and is elected by a 2/3 majority of core faculty to lead the center. The director sets the center's strategic vision and executes the mission in collaboration with the core members, is responsible for the financial management and reporting, champions the provision of high-quality research, and fostering external visibility. The director will serve a 3-year term and may be re-elected for one additional 3-year term.

- Associate Director: The associate director is an active researcher in one or more of the CHAI's research pillars and is nominated by the director from the Steering Committee. The appointment is confirmed by a ⅔ majority vote of core faculty. The associate director serves a 3-year term. The associate director supports the director in executing the center's mission, including annual report preparation, research partnership development, and co-chairing the annual AI retreat.

- Steering Committee (SC): The steering committee membership (8 members) represents the diverse research portfolio of CHAI. The steering committee members are nominated by the director and are selected by a ⅔ majority vote by the core faculty at large for staggered 3-year terms.

- Research Programmer: The research programmer will have the responsibility of supporting all of the center's research programming activities. These include, (i) serving as a liaison between the CHAI's research teams and industry, federal agencies, state agencies, and foundations; (ii) communications; (iii) annual report generation; (iv) content management for online presence (website, social media); (iv) event hosting (primarily for AI seminars, sponsors, research talks, and external agencies). The research programmer will support project logistics of core faculty, as time allows.

- Research Arm Lead: A research arm lead is a recognized researcher in one of CHAI's four research focus areas and promotes research collaborations in that area. Research Arm Leads also coordinate to the annual reporting for their research area and are responsible for identifying seminar speakers for their area. A research arm lead is selected from the core faculty members by ⅔ majority voting, for staggered 3-year terms. The research arm lead can continue for one or more additional terms if nominated by the 2/3 majority vote of the core faculty members.

- External Advisory Board: The advisory board is composed of distinguished members and research stalwarts in human-aware AI from industry and academia, who have high interest in CHAI's success.

- Core Faculty: Details are given in the next section..

- Affiliate Faculty: Details are given in the next section..

Core and Affiliate Faculty

Core faculty members are integral to advancing the CHAI research portfolio. The core faculty members should have rigorous and sustainable research profiles. The roles and responsibilities for core faculty are greater than affiliate faculty. Core faculty are expected to consider most of their research program to be related to one or more of CHAI's research focus areas. This expectation is not maintained for affiliate faculty who are expected to conduct some research in one of these areas. Collegiality is an integral expectation from all members of CHAI. Collegiality refers to behavior that is professional, cooperative and respectful in a manner consistent with being a productive member of the RIT community. Collegiality extends beyond CHAI and includes job performance in the classroom, with students, fellow faculty members and staff.

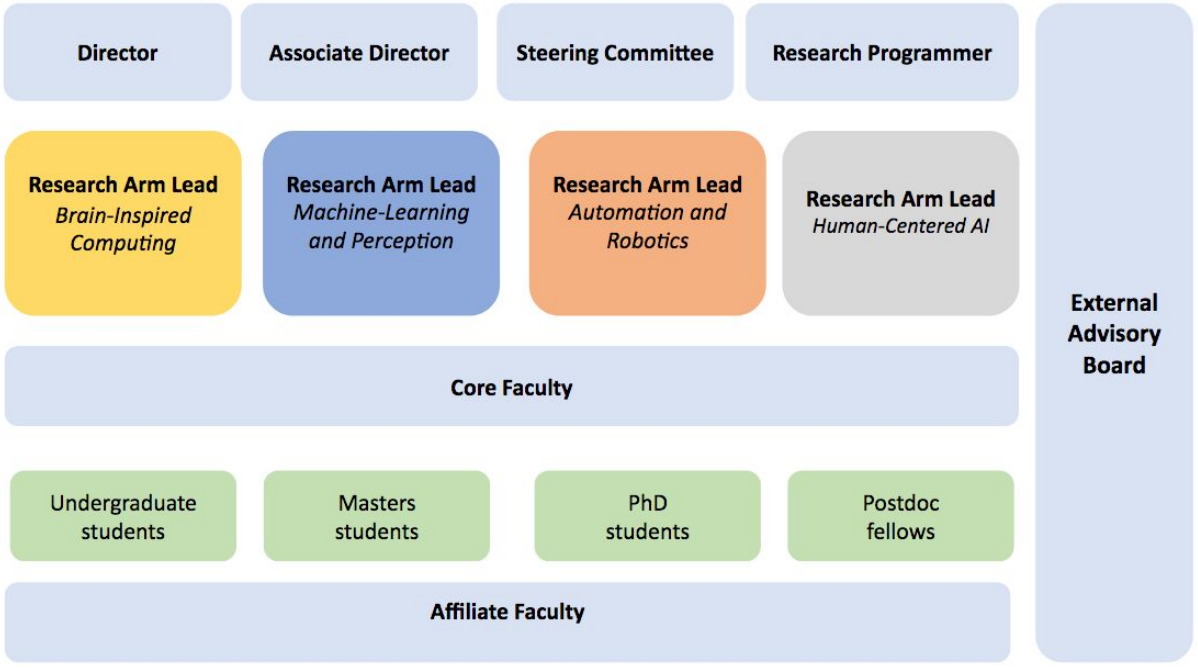

Figure 2: CHAI's Organization Structure

Core faculty members of the center are expected to:

- Maintain active AI research programs, which includes both 1) publishing top-tier refereed journal and conference papers, and 2) winning external grants that are affiliated with CHAI.
- Help guide the center's direction, while contributing to a collegial environment.
- Be involved in collaborative research projects with other center members.
- Be engaged in multidisciplinary mentoring of students.
- Assist with maintaining the center status by providing information on research awards and activities for regular reporting to the OVPR.
- Help organize and plan center activities, e.g., the annual retreat, seminar series, etc.
- Attend an annual retreat and meetings of the core faculty roughly twice a semester.

- Contribute content to CHAI's annual report, which summarizes their research activities for the past year.

Core faculty are eligible to be elected to serve on the center's steering committee, as research arm leads, and as director or associate director. They may request resources from the center director. They are voting members of CHAI.

Affiliate faculty members are expected to:

- Attend the center's annual retreat and seminar series, if no extenuating circumstances
- Serve on thesis/dissertation committees for students working on AI.
- Work on appropriate collaborative research projects with other center members.

If affiliate faculty choose to increase their engagement to levels comparable to that of core faculty, they may choose to apply to become core faculty. This process is described later in "Maintaining Center Membership." Affiliate faculty are non-voting members of CHAI.

	Seminar Talks (present on a annual basis; members or their students)	**Attend center activities (site visits, annual retreat)**	**Attend admin meetings**	**Serve on AI student thesis committees**	**Apply for collaborative proposals and lead or co-lead sponsored research awards**	**Contribute to annual report**
Affiliate	Required	Required	Optional	Required	Optional	Optional
Core	Required	Required	Required	Required	Required	Required

Table 1. Responsibilities for Core and Affiliate Members

	Travel/ publication support	**Seed grants**	**Research staff member**	**Grant and networking opportunities**	**Student support**	**Affiliated project communication support**
Affiliate	No	No	No	Yes	No	Yes
Core	Yes*	Yes*	Yes	Yes	Yes**	Yes

* Based on the availability of funds.

** Based on the availability of funds. Priority based on need and request from a member once every 3 years.

Table 2. Access to resources for CHAI members

III. Joining the Center

Core Faculty

RIT faculty can become core faculty in two ways:

1. By accepting an invitation: Invites to existing RIT faculty are only given via unanimous vote of all core faculty members.

2. By application: RIT faculty can submit a request to the director and associate director to join the center's core faculty with a succinct application: (1) an up to two-pages statement describing their research program in AI and expected contributions to center activities given the above-listed expectations of core faculty, (2) a CV that includes a list of publications and grant awards, and (3) letters of endorsement from two core faculty members. Core faculty will review materials and vote on submitted applications at their next meeting or at the annual retreat, or alternatively by electronic vote. A 2/3 majority vote is required for an applicant to be appointed a core faculty member.

Affiliated Faculty

RIT faculty may apply to become CHAI affiliate faculty. Faculty wishing to become affiliated faculty submit a CV with a cover email to the director and associate director. The cover email should (1) explain why they wish to become affiliated with CHAI, (2) discuss their research program, and (3) indicate that they have familiarized themselves with the expectations of affiliate faculty. A majority vote of core faculty members is sufficient for an affiliate applicant to join CHAI. Core faculty will review and vote on submitted applications at their next meeting or at the annual retreat, or alternatively by electronic vote.

IV. Project Affiliation with CHAI

As per RIT guidelines, Research Centers of Excellence are supported by extramural funding. *"The minimum amount of annual expenditures recorded on externally-funded projects housed within the research center/lab, including capital, must average at least $.5M per year in total expenditures (not including F&A) for a period of at least the past two consecutive years.*" [Excerpt from RIT OVPR Website]

In recognition of the financial investment required to operate CHAI, the center will receive 20% of additional recovered F&A costs. This budget will be used for accelerating and promoting CHAI research activities. Members can affiliate a project to the center by selecting "CHAI" when submitting PRFs for new projects. Details of the budget utilization are provided in the CHAI membership benefit section.

The most up-to-date information about the overhead returns will be available at http://www.rit.edu/research/srs/grantsmgmt/Recovered_FA_Return.htm.

V. Benefits of Center Membership

CHAI will support in identifying and fostering transdisciplinary collaborations for its members. The core members with funded research affiliated to CHAI can receive multiple benefits: research programming support, grant writing consultants, digital media support for research, networking with research partners, a percentage overhead return proportionate to their funding, travel support, peer evaluation of proposals, and seed funding for new targeted grant proposal collaborations. These benefits are dependent on the grant activity at a given point in time and, as such, should be considered fluid.

There are several benefits associated with the center membership, beyond the tangible ones. Some of these include: ability to shape a signature research area for the institute, a collegial transdisciplinary work environment, intellectually stimulating weekly seminars, and preparing students to work in a transdisciplinary culture.

VI. Maintaining Center Membership

Core Faculty: Core faculty appointments are reviewed annually. Core faculty are expected to maintain visible and externally funded research programs in AI that help meet the OVPR office requirements. It is expected that they will submit at least one center-affiliated grant proposal per year as PI or Co-PI, publish at least one refereed paper in AI per year, attend center activities on a regular basis, attend weekly AI seminars on a regular basis, and attend administrative meetings of core faculty on a regular basis. Core faculty members are responsible for contributing the following to the CHAI annual report: 1) a 2-page summary of their AI research activities over the past year, and 2) their contributions to CHAI over the past year. The research programmer will solicit reports and provides the template in the 2nd Friday in April annually and these reports will be due by **second Friday in June annually**. Core faculty are expected to provide research project slides for CHAI sponsored research activities. If one or more of these requirements are not met, then the member's status in the center may change to affiliate faculty member. This is done by majority voting of the core members. At any time, a core member may choose to change their status to affiliate or withdraw membership from the center. In such an instance, members projects that are affiliated with CHAI will continue for that fiscal year and any new projects will be assigned as per general OVPR guidelines.

Affiliate Faculty: Affiliate faculty appointments are reviewed every three years. Each affiliate faculty member will provide a written report detailing their involvement in the academic life of the center to the director. If the director and/or a majority of the core faculty do not vote for sufficient involvement having been demonstrated over a three-year period, or if the report is not received, then the affiliate faculty appointment will be terminated without prejudice. The report consists of a 1-2 page narrative summarization of past, current, and future involvement with the center. The research programmer will solicit reports and provides the annual report template in the second Friday in April annually and reports will be due by

second Friday in June every three years. It should also include an appendix with information about, but not limited to, a summary of collaborations with other center faculty, a list of AI publications written in the past three years, students supervised, participation in center activities, and a list of center-affiliated grants awarded. While the renewal process is similar for core faculty, core faculty are expected to be significantly more involved in CHAI. For example, affiliate faculty are not required to apply for grants affiliated with the center, unlike core faculty. In the re-application, an affiliate faculty can request to be made a core faculty member by submitting the core faculty application material described in "Joining the Center."

VII. External Advisory Board

The external advisory board provides advice and counsel to the CHAI regarding research trends and needs, and support in CHAI achieving its goals. At a formal annual one-day summit, the board will be presented about CHAI activities and the board will provide comprehensive feedback on the programming. It will be comprised of AI researchers from industry, academia, and national laboratories. New members of the advisory board will be nominated by core faculty members and membership requires a 2/3 majority approval of core faculty members.

VIII. Center Communications

Center-wide Update (Monthly): The center will send a newsletter on an annual basis from the Center Director and other members of the leadership team. The letter will include accomplishments (papers published, grant awards, recognition, etc.) of center members, describe other center accomplishments, and provide a listing of upcoming CHAI events. Center staff or leadership will contact all center faculty on a monthly basis to request contributions to the monthly update.

AI Seminar Updates: CHAI will host weekly technical talks on AI during the academic year. Information about these talks will be sent out to members of the campus AI mailing list.

IX. Updating and Amending the Charter

This charter may be updated and amended via a 2/3 majority vote of core faculty members.