

# CENTER FOR HUMAN-MACHINE SYSTEMS: CODES OF OPERATION

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*Sep 2, 2016*

## **1. Mission statement**

The Center for Human-Machine Systems (CHMS) aims to improve human-machine systems by combining the unique capabilities of the engineered and natural subsystems. The center will do this by providing to its members a synergistic environment and resources to promote the development of high-quality, well-funded, and high-impact research projects.

## **2. Governance structure**

The Center will have two co-directors. The directors will be responsible for overseeing the center's budget and manage the daily operations.

The full membership of the center will meet each year in January, April, August, and October to evaluate the center's activities and perform strategic planning. Current members are listed in Appendix A.

An external advisory board (EAB) will perform external review of the Center's activities prior to submission of the Center's annual report. Members of the advisory board will include representatives from CSU administration, regional peer institutions (VA Medical Center, Case Western Reserve University, Cleveland Clinic, University of Akron), the regional business community, and the broader scientific community that conducts peer review of federal grant applications. Funding will be set aside to host an annual EAB meeting and pay a small honorarium to EAB members.

## **3. Internal funding programs**

The center will fund pilot studies will be funded to help develop grant proposals. Such studies are limited to one year and a budget \$50,000. The budget may include all justifiable expenses, such as course release or summer salary for the P.I., equipment/fabrication, research participants, and graduate student stipends. Release time may be used for research and/or grant writing. Within 6 months from the conclusion of a pilot study, the P.I. must submit a proposal for external grant funding which includes the full applicable indirect cost rate and no cost share other than tuition waivers.

The center will also consider smaller requests to fund equipment or fabrication costs, dissemination costs, travel, or anything else that supports the mission of the center. Requests must be submitted in writing, with justification.

The membership will decide on the criteria and format for these applications.

#### **4. Member responsibilities**

Members must submit a proposal for at least \$100,000 in external funding as P.I. or co-P.I. in each year.

When possible, members must submit their applications for external funding (federal, state, industry) to the Center one month before the external deadline. In all cases, the center directors must be informed of the planned submission. Two members of the Center will perform an internal review and provide written comments and recommendations for revision. One of the reviewers will not be a current collaborator. The center directors will review the budget and ensure that the center is supported appropriately through direct or indirect costs. Based on the internal review, the center directors will decide whether the proposal is ready to be submitted.

Faculty currently receive a 10% share of indirect costs related to external funding, and members agree that this will go to the center instead to be used for the benefit of all members (see Internal Funding Programs). Members can expect to receive back, on average, what they contribute in this manner.

Members must submit an annual report of research activities, for inclusion in the center's annual report.

#### **5. Other center activities**

The center will have a fund to assist students with conference travel. However, this should only be required in exceptional circumstances. The center will ensure that such activities will be included, to the extent allowed by funding agencies, in the direct cost budgets of all grant proposals.

The center will organize a seminar series and provide funding for 1-2 external seminar speakers each year (\$2000 in the current budget).

The Center will employ a part time administrative assistant who will assist with management of the center, budgeting, and public relations. Administrative support will also be provided directly to members to help manage their research programs. The extent of this will depend on how the departments and colleges share their indirect costs with the center (see "Center Funding Plan").

The Center will employ a part time design engineer who will be available for short term work to support members' research and pilot studies. To best support the current activities, this will be a mechanical engineer with expertise in mechanical design and mechatronics. Depending on project needs and availability of funding, technical support could be expanded into other areas such as electronics or computation.

## **6. Criteria for faculty membership and renewal**

In order to become a member of the center, an investigator must submit evidence of having achieved in the past three years:

- a. Peer-reviewed publications as senior or lead author, in an area related to the Center (0.5 points for each)
- b. External grant funding as a P.I. or co-P.I. (1 point per \$100,000 total cost)
- c. Supervision of graduate student research, with completion of master's thesis or doctoral dissertation, or presentation of a completed research project (2 points for each doctoral student, 1 point for each masters student)

A total of 5 points is required, and at least one point each from two categories. For example: 3 publications, \$150k of funding, and two graduate students over the past three years would qualify for membership. Ten publications alone would not qualify.

Assistant professors are exempt from these criteria for their initial 3-year membership, but will need to submit an application that includes their accomplishments and progress towards qualification for membership.

Membership is granted for three years. After three years, each member will be reviewed by the according to the same criteria as initial membership, plus the fulfilment of their member responsibilities as stated in the previous section.

Applications for membership and renewal will be reviewed and decided by the center directors.

## **7. Center funding plan**

The Center's activities will be funded for three years (July 2016 - June 2019) through startup funds provided by the Office of Research (see Appendix B). After this period, we plan to sustain and grow the activities of the center through a combination of the following funding sources:

- a. Indirect costs. As stated above, members agree to transfer their share of indirect costs to the Center. The Center will negotiate with the departments and colleges of members to also transfer or split their share of the indirect costs.

- b. Philanthropy. Philanthropic funding will be sought to fund additional activities, particularly, to increase the funding for pilot studies.
- c. Government funding. The center directors will seek out funding opportunities such as centers of excellence funded by NSF, NIH, or Ohio.
- d. University funding. After demonstrating success, we plan to expand the center to a Type 4 CSU Center which qualifies for up to \$50,000 of annual institutional support.