

**CASA ENGINEERING RESEARCH CENTER
MEMORANDUM OF UNDERSTANDING**

Revision 12/22/05

Engineering Research Centers (ERCs) develop partnerships with industry to advance next-generation or transforming-engineered systems and new generations of engineering innovators. ERCs use strategic planning to focus and integrate cross-disciplinary teams of faculty and students on research leading to advances in fundamental knowledge and enabling and systems-level technology. The National Science Foundation expects the lead and core partner universities to function as an integrated whole, with shared research and education goals, shared elements of the curricula, and a shared program of industrial collaboration.

I. The CASA Engineering Research Center

- A. CASA is the Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere at the University of Massachusetts, which is a National Science Foundation Engineering Research Center, with the University of Massachusetts, Amherst, MA as the lead University and the Board of Regents of the University of Oklahoma, Norman, OK, The Board of Governors of the Colorado State University System, by and through Colorado State University, Fort Collins, CO, and the University of Puerto Rico-Mayaguez, Mayaguez, Puerto Rico as Core Institutions, (hereinafter "UNIVERSITIES" and each a "UNIVERSITY").
- B. The UNIVERSITIES, as Core Institutions of CASA shall act in accordance with the Procedures described herein.
- C. **CASA Organization:** The CASA Director reports to the UMass Dean of Engineering who chairs a Dean's Council composed of appropriate deans at all core partner institutions. CASA's leadership team, known as the Executive Committee, is comprised of the Director, two Deputy Directors, three Associate Directors, Co-Directors of Education, Research Thrust Leaders, and Director of Industry, Government and End User Partnerships. A group of four Boards advises the center director: the Industrial Advisory Board, the Student Advisory Council; a partnership-wide Stakeholder's Board, and an External Science and Engineering Advisory Board.

The Executive Committee orchestrates CASA's overall direction as articulated in the center's strategic plan. This committee oversees the research, education and outreach programs; recruits new industry and government agencies to take part; enforces the highest standards in ethics and research quality; develops diversity; monitors progress relative to established milestones in accordance with the strategic plan; and promotes broad dissemination of results. This team meets via teleconference and holds face-to-face meetings periodically. The Director chairs the Executive Committee and has overall responsibility for maintaining CASA's vision for Distributed Collaborative Adaptive Sensing (DCAS) systems, final

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approval of the annual budget, and maintaining priorities through the strategic plan and strategic planning process. CASA has two deputy directors, one at OU and one at CSU, who both assist the director with strategic planning, budgeting, and other aspects of center leadership. The deputy director at OU focuses on meteorological applications of DCAS and broad issues of Center policy and engagement with other organizations and activities, and the deputy director at CSU focuses on the overall research program of CASA; in addition to these foci, the Deputy Directors serve as thrust leaders (listed below) and host major test beds.

CASA's Associate Directors are located at OU, UMass and UPRM. The Director of Industry, Government, and End-User Partnerships and the Industry Liaison Officer foster strong practitioner/academic partnerships in research and education, plans and facilitates technology transfer, and orchestrates the recruitment of new industry members. UMass also has two co-directors of the Education and Outreach programs of the center, and a PhD Candidate chairs the Student Leadership Council and leads the student test bed project.

Thrust-level leadership is also provided by the University shown: Networked Sensing Sub-Thrust: CSU; CLEAR Sensing Sub-Thrust: UMass; Solid State Sensing Sub-Thrust: UPRM/UMass; Distributing Thrust: UMass; Predicting Thrust: OU; End-User Integration Team: UMass; Technical Integration Team: UMass.

- D. CASA's Strategic Plan, Review, and Budgeting Cycle: CASA operates under a strategic plan that is periodically updated and that serves as a roadmap by which CASA evolves its overall goals, assimilates new knowledge, discovery and opportunities, and structures major changes in direction and/or composition of the team. Maintaining and updating this plan is the responsibility of the Executive Committee, under the leadership of the director, with the advice of the advisory boards. CASA's annual planning, reporting, and budgeting cycle, begins with a strategic goals and planning meeting in September of each year. At this meeting the Executive Committee and members of the advisory boards, researchers, and other stakeholders conduct long-range planning and formally update the key elements of the strategic plan (such as the Goals, Milestone Chart, Key Barriers, Test Bed Definitions, and other major operating constructs) as needed. The Executive Committee meets via teleconference on a cycle that varies from weekly to monthly and holds face-to-face meetings quarterly throughout the year for the purposes of design and project review, Strength Weaknesses Opportunities Threats (SWOT) analyses, annual review, and budget preparation.

II. Definitions

- A. **The "CASA Director"** shall mean the tenured or tenure-track faculty member named in the NSF award as Key Personnel. Any change to Key Personnel must have prior approval from NSF.

- B. **The “CASA Executive Committee”** shall at a minimum be composed of the CASA Director, the CASA Deputy Director(s), the UNIVERSITIES’ Associate Directors, the Director of Industry, Government and End User Partnerships, the Industry Liaison Officer, the Co-Directors of Education and Outreach and the Research Thrust Leaders. Each University shall have at least one (1) permanent member on the Board. The CASA Executive Committee will meet at least monthly to make decisions in an on-going manner, and advise the CASA Director.
- C. **The “Chair - IAB”** shall be the representative of a current CASA Industry Consortium Member or any other individual the IAB may designate elected as the chairman of the IAB by a majority vote of the IAB members present at the annual meeting. The chairman shall serve for a two-year term by a majority of the IAB present at the annual meeting. The Chair-IAB for the first two-year term (9/03-9/05) will be the individual designated in the CASA proposal accepted by the NSF.
- D. **The Industry Advisory Board (IAB)** shall be composed of one representative for each CASA Principal Member. Each Principal Member shall designate a primary representative and an alternate representative. The IAB will meet at least twice per year and serve to advise the CASA Director on the operation of the Center and the thrusts of the Core Research program. In addition to advising the Center Director on the commercial viability of the research, the IAB will also convey to NSF the progress CASA makes towards its objectives. The IAB will share the responsibility for planning the core research program in conjunction with the Executive Committee.
- E. **“CASA Core Research”** is the research conducted within the CASA Program which is funded in whole or in part by CASA Funds, to meet the objectives set forth in CASA’s Strategic Plan. Research shall not be considered CASA Core Research solely because of the incidental or reimbursed use of In-Kind Contributions or facilities or equipment paid for with CASA Funds.
- F. **“CASA Non-Core Research”** is the research conducted within the CASA Program that is not CASA Core Research. CASA Non-Core Research will be regulated by separate sponsored research agreements and administered through the respective UNIVERSITIES’ Offices of Sponsored Programs. This Agreement does not govern any CASA Non-Core Research. The work may be utilized by or relevant to CASA Core Research, and the outcome of the non-core research may be directly beneficial to the CASA Core Research. The work may be sponsored by one or more UNIVERSITIES, industry and/or government agencies.
- G. **“CASA Documents”** shall include the NSF proposal, the NSF Cooperative Agreement, subcontracts to the Core Institutions, and any regulations or statutes

relevant to the interpretation of these documents, as any of the above may be amended from time to time.

- H. **“CASA Funds”** shall mean the funding, both monetary and/or in-kind contributions, obtained from NSF, and other entities such as the UNIVERSITIES, CASA Industry Consortium Members, government agencies or foundations for the purpose of meeting the objectives set forth in CASA’s Strategic Plan.
- I. **“CASA Program”** is the set of activities and objectives described in the National Science Foundation Engineering Research Center (NSF/ERC) Cooperative Agreement and the Strategic Plan for the Center for Collaborative Adaptive Sensing of the Atmosphere (CASA) (together the “CASA Documents”) and those activities established in collaboration with the CASA advisory boards, and under the direction of the principal investigator of CASA (hereinafter “CASA Director”).
- J. **“Background Technology”** shall be intellectual property owned by a CASA Industry Consortium member or UNIVERSITY for which a license is required to conduct research in the CASA Core Research program or to practice Subject Property Rights. Background Technology shall be administered in accordance with the appropriate Background Technology Agreement as addressed in Article III.E.
- K. **“CASA Industry Membership Agreement”** shall mean the agreement attached as Exhibit 1 to this Memorandum of Understanding and any other similar membership agreements defining the rights and obligations of classes of members in CASA, all as may be approved and/or modified by the unanimous agreement of the UNIVERSITIES from time to time. For the avoidance of doubt, a proposed agreement shall not be a CASA Industry Membership Agreement until such time as it is approved by all of the UNIVERSITIES.

III. **CASA Research and Technology Transfer Administration**

- A. UNIVERSITIES shall use reasonable efforts to organize, direct, and administer the CASA Program in accordance with the terms and conditions of this Agreement and the CASA Documents. In the event of a conflict between the terms of this Agreement and the CASA Documents, the CASA Documents shall control. UNIVERSITIES shall include the terms of this Agreement in any subcontracts for research to be conducted under the auspices of CASA.
- B. The CASA Director will manage the overall activities of CASA; will work with the CASA Executive Committee and the IAB to develop operating and research budgets, strategic plans and policy for CASA, and will direct the CASA Research, Education and Outreach, Industrial Liaison, and administrative programs. The CASA Executive Committee is the most senior of all CASA support entities and serves as the main advisory/approval body to the CASA Director for all policy-

related, administrative, management, resource, technical, and financial issues.

- C. The CASA Director will appoint an Industry Liaison Officer who will work with the CASA Director and Chair-IAB in coordinating the work of the IAB; administer and promote the CASA Industry Consortium Members' interface with the various technology transfer offices of the UNIVERSITIES; and plan and promote technology and knowledge transfer activities.
- D. In accordance with guidelines stated in the NSF Engineering Research Center Best Practices Manual, "NSF recognizes that an ERC may have a global dimension, since many research and education challenges and opportunities require overseas collaboration to bring the best resources to bear on a problem. NSF policy permits foreign firms to be involved in an ERC if they agree to operate on a *quid pro quo* basis, exchanging personnel, sharing support, risks, benefits, information, and their own facilities to the same degree as all other participating U.S. firms do." All such participation shall be in accordance with applicable law.
- E. With regard to application for membership in the CASA Industry Consortium, the CASA Director with advice of the IAB and Executive Committee will reserve the right to decline new membership requests in case of unresolved questions of compliance with NSF or other US government policies, or the goals of the CASA Program, or without cause or prejudice.
- F. Each CASA Industry Consortium Member and each UNIVERSITY shall use reasonable efforts to identify any background intellectual property of which it is aware that may be relevant to the conduct of CASA Core Research ("Background Technology"). Each such member and UNIVERSITY may, at its discretion, license the other members and the UNIVERSITIES to use that Background Technology to the extent reasonably necessary to conduct the CASA Core Research. The terms of use of Background Technology will be defined in a Background Technology Agreement created on a case-by-case basis that is approved by the originating party and the CASA Director with advice of the Chair-IAB. If Intellectual Property results from research conducted using Background Technology, then the respective UNIVERSITIES and CASA Industry Consortium Member will decide who will be responsible for negotiating the licenses necessary to exploit that Intellectual Property. Notwithstanding, there will be no transfer of ownership nor granting of any rights to Background Technology unless specifically agreed to in writing by the owning CASA Industrial Consortium Member or UNIVERSITY.

IV. Incorporated Documents

The following documents are relevant to the conduct of the CASA ERC and are incorporated herein as Exhibits to the MOU:

Exhibit 1: CASA Industry Consortium Principal Member (Option A) Agreement

- Exhibit 2: CASA Industry Consortium Principal Member (Option B) Agreement
- Exhibit 3: CASA Industry Consortium Associate Member Agreement
- Exhibit 4: CASA Partner Institution Confidential Disclosure Agreement
- Exhibit 5: CASA Inter-Institution Intellectual Property Handling Procedures
- Exhibit 6: National Science Foundation Cooperative Agreement

All Intellectual Property issues will be managed in accordance with these documents.

V. Cooperation Among CASA UNIVERSITIES

- A. Each UNIVERSITY that is a CASA ERC member is engaged in a cooperative scientific relationship with the other UNIVERSITIES that is governed and controlled pursuant to the Prime Cooperative Agreement between the National Science Foundation (NSF) and the University of Massachusetts, and further pursuant to the subcontracts entered into between UMASS and the respective UNIVERSITY. The terms and conditions contained in the Prime Cooperative Agreement shall at all times control over any conflicting provision of any other agreement between or among the UNIVERSITIES.

VI. Industry Memberships

- A. Industry Memberships will be governed according to the terms of Exhibit 1, Industry Membership Agreement.
- B. As part of the annual membership fees described in Exhibit 1, and at the discretion of the CASA Director and the Industry Liaison Officer, CASA Industry Consortium Members may make an in-kind contribution to a CASA Core Institution consisting of software, services, or equipment that the CASA would have otherwise purchased. The CASA Director shall determine the terms and conditions of such in-kind contributions and the corresponding time period and level of Industry Membership obtained by such contribution based upon the value of the contribution.
- C. For purposes of facilitating new memberships, the UNIVERSITIES hereby agree that as lead institution, the UNIVERSITY OF MASSACHUSETTS, acting by and through its duly authorized officers, may enter into CASA Industry Membership Agreements with new members, and the remaining UNIVERSITIES shall in all respects comply with and perform the obligations of the UNIVERSITIES under each such agreement, so long as such agreement is in the form approved by the UNIVERSITIES and does not create or imply any new or modified fiscal or other obligation, or modify any right, of a UNIVERSITY. UMASS shall promptly provide one fully executed copy of each Industry Membership Agreement to the designated representative of each UNIVERSITY and shall at all times keep such persons fully apprised of all negotiations, document executions, membership

payments received, notices, disclosures, agreement amendments and terminations, and other business relating to Industry Members.

Designated Representatives / Point of Contact:

University of Oklahoma: Jennie Parker, Office of Research Services

Colorado State University: Mary Atella, Office of Sponsored Programs

University of Puerto Rico, Mayaguez: Jose Colucci, Associate Dean for R&D

VII. TERM and TERMINATION: As to any party, this MOU will terminate upon termination of that party's subcontract from University of Massachusetts to the UNIVERSITIES.

VIII. RESOLUTION OF DISAGREEMENTS: Should disagreement arise on the interpretation of the provisions of this MOU, or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement on interpretation is not reached within thirty days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution, failing which, a party may seek legal or equitable relief under applicable law.

IN WITNESS WHEREOF, UNIVERSITIES have executed this Agreement in duplicate, originals of which shall be of equal dignity.

University of Massachusetts, Amherst

By: _____

Name: Carol Sprague

Title: Director, Grant and Contract Administration

Date: _____

IN WITNESS WHEREOF, UNIVERSITIES have executed this Agreement in duplicate, originals of which shall be of equal dignity.

The Board of Governors of the Colorado State University System, acting by and through Colorado State University:

By: _____
Name: Lynn Johnson
Title: Director of Sponsored Programs
Date: _____

IN WITNESS WHEREOF, UNIVERSITIES have executed this Agreement in duplicate, originals of which shall be of equal dignity.

Board of Regents of the University of Oklahoma

By: _____

Name: Susan Wyatt Sedwick, Ph.D., CRA

Title: Associate Vice President for Research and Executive Director, Office of Research Services

Date: _____

By: _____

Name: Dan G. Davis, CPA

Title: Executive Director, Office of Technology Development

Date: _____

IN WITNESS WHEREOF, UNIVERSITIES have executed this Agreement in duplicate, originals of which shall be of equal dignity.

University of Puerto Rico-Mayaguez

By: _____

Name: Jorge I. Velez Arocho

Title: _____

Date: _____