

## Center for Hardware and Embedded Systems Security and Trust (CHEST) Bylaws

Approval Date: IAB approved on 16 November 2021 and NSF approved on 29 October 2021

Lists the member universities

Member universities: University of California, Davis (UCD); Northeastern University (NU); University of Connecticut (UCONN); University of Texas at Dallas (UTD); University of Virginia (UVa); University of Cincinnati (UC)

### 1. Membership: Industrial Advisory Board (IAB) and University

#### 1.1. Industrial Advisory Board (IAB)

Industrial Advisory Board membership in CHEST is through the Membership Agreement for Industrial Partners. The Membership Agreement for Industrial Partners has precedence over these bylaws.

##### 1.1.1. Full IAB Membership requirements for IAB membership

Full IAB membership requires full annual sponsorship and allows for full voting rights as described below. Note: Voting and IP rights only apply to research projects for the year of the sponsorship (including any no-cost extensions of those research projects).

##### 1.1.2. Partial IAB Membership

Partial IAB membership requires payment of half the annual sponsorship and allows for voting rights as described below.

##### 1.1.3. In-Kind Contributions

At the discretion of the Sponsored University Site Director, in-kind contributions can be accepted for affiliate membership purposes. All such contributions must be approved by a 2/3 majority vote of the IAB, and they do not allow for any voting privileges or IP rights.

### 1.2. University

#### 1.2.1. Members

University members are designated by NSF as CHEST IUCRC Sites, and they have signed the Memorandum of Understanding (MOU) between University Partners of the CHEST. The CHEST MOU has precedence over these bylaws.

##### 1.2.1.1. University Member Continuation

University membership continuation requires sustained support for member institutions. Each academic member must maintain at least three industry or DoD sponsors that are each full members of the CHEST IAB. Two consecutive years without meeting NSF IUCRC defined funding requirements results in automatic downgrade. Downgraded members can complete currently funded projects, but they can't propose additional CHEST funded projects. Downgraded members can have their membership reinstated by reaching the required funding levels. Note: NSF reserves the right to end

the award for any Center or Site that does not meet its membership requirements for two consecutive years.

### 1.2.2 Additions or Deletions talks about how universities are added to CHEST

From time to time, new universities may request membership in the CHEST IUCRC. Each new university requesting membership shall 1) justify membership by providing Letters of Commitment satisfying IAB membership requirements and 2) submit a “Letter of Intent” to join the CHEST IUCRC to the CHEST Director. A university requesting membership must demonstrate and substantiate their ability to perform synergistic research within the focused research areas of CHEST; willingness to work within the structure, policies, and procedures of CHEST; and unique skillset and capabilities for the CHEST IUCRC. Upon concurrence by the CHEST

- defined as a positive vote by a **majority** of the CHEST Executive Committee (CEC)
- signified through a “Letter of Support” from the CHEST Director that includes:
  - description of the value of the proposed new site
  - summary of the CHEST Site director vote

the new university requesting membership may continue application per the applicable procedures of the current National Science Foundation I/UCRC program solicitation.

### 1.2.3 Subcontracts

As part of the standard CHEST research proposal process and in order to carry out research required by CHEST academic and IAB members, it may be advantageous for a CHEST university member to subcontract research to a non-member university. When a CHEST member wants to subcontract part of a research project to a non-member university, they will submit a SOW, budget, and budget justification to the CEC. A majority of the CEC must approve the sub-contract.

## 2. Organization and Management

### 2.1. Lead

The location of the lead university is determined by the CEC and must be coordinated with NSF. The lead university is responsible for coordinating the management of all major CHEST activities. This responsibility may be delegated or subcontracted to one or more other CHEST member universities at the discretion of the Director.

### 2.2. Director

The Director is responsible for overall management of CHEST and is the chairperson of the CEC. The Director is located at the lead university, and is normally nominated by the CEC to the Dean of the appropriate college at the lead university for appointment to a renewable term of five years. The Director is also responsible for ensuring efficient operation of CHEST, creating and maintaining a collaborative infrastructure and coordinating the assessment of CHEST’s quality through feedback from the IAB and the NSF Evaluators. The Director may appoint an Interim Director from among members of

the CEC. An Interim Director may serve for a period of up to one year. In the event the Director departs due to health, retirement, or other reasons, a new Director will be selected by the Site Directors.

### 2.3. Site Directors

Each CHEST member university appoints a local Site Director of all CHEST activities for that member university. The primary responsibility of the Site Director is to represent CHEST before its IAB members and the research community as well as day-to-day administration of the research agenda and membership of the respective university. Site Directors are normally appointed by college Deans for renewable five-year terms. The Director serves as the Site Director of the lead university. In the event the Site Director departs due to health, retirement, or other reasons, a new Director will be selected by the college Dean.

### 2.4. CHEST Administrative Positions

Due to the size of the CHEST IUCRC, from time to time it may be necessary to hire additional non-academic, administrative support personnel. In order to fund these positions, the Center's IAB may vote on the allocation of Program Income to support Center administrative or non-research related costs with cognizant NSF Program Director approval.

- The IAB will be asked to approve the Program Income funds on an annual basis.
- The NSF Program Director will be asked to approve the position and funding of the position through Program Income on a one-time basis.
- The Program Income funds will only be used to support positions that are Central to all CHEST Sites, not for positions at individual CHEST Sites.
- Program Income from regular membership dues will not be used to fund these positions, only "extra" Program Income funds.
- The funded administrator will provide an annual activity report to the IAB.

### 2.5. CHEST Executive Committee (CEC)

The CEC is comprised of the Site Directors of member universities. The CEC is responsible for the long-term operation of CHEST via recommendations from the IAB. The CEC is chaired by the CHEST Director (or their designee). A meeting quorum is three-fourths (3/4) of all CEC members. All issues are resolved by consensus whenever possible or by a three-fourths majority of those attending a meeting when a formal vote is taken. Upon review of the IAB's funding recommendations, the CEC recommends to the Director the final allocation of funds to member universities.

### 2.6. Industrial Advisory Board (IAB)

#### 2.6.1. Composition

The IAB is comprised of one official liaison from each industry or DoD member. The IAB's primary responsibilities are to review research status and results and to recommend project funding priorities to the EC. The IAB meets at least twice per year. The quorum for an IAB meeting is two-thirds (2/3) of the voting IAB members or their proxies.

## 2.6.2. Voting

Each sponsor of CHEST, as defined in the IUCRC Membership Agreement for Industrial Partners, shall be allocated votes in proportion to the amount of their annual membership fee (within allowable NSF limits). For example, if an IAB member joins at the \$50K per year full membership rate, they will receive 50 votes to apply toward funding CHEST research projects. If an IAB member joins at the \$25K per year reduced membership rate, they will receive 25 votes to apply toward funding research projects. The upper limit on the number of votes allocated to any one IAB member is 100 votes per year, even if they provide more than \$100K in annual membership fees. To encourage a consortium of diversified projects, during the first round of voting, no single project can receive more than 50% of any single IAB member's votes. Otherwise, the cumulative votes are distributed across projects in any way the member sees fit. For all other IAB votes, members are assigned one vote for every \$25K of membership (up to four votes for members at or over the \$100K level).

### 2.6.2.1 Detailed Project Selection Process

Normally, project voting takes place annually. As described above, each IAB liaison of CHEST is allocated one vote for every \$1K increment of their annual membership fee (up to a maximum of 100 votes). For example, for the standard \$50K annual membership fee, an IAB liaison receives 50 votes. The votes can be applied to one or more projects the liaison's organization would like to see funded. The selection process takes place via multiple rounds of voting (limited to no more than three rounds), and the process can take place at the IAB meeting or via email.

#### 2.6.2.1.1 Round 1 Voting:

- IAB liaisons *Distribute* their votes across proposed projects
- After votes are applied, the percentage of *Budget Met* for each project is calculated
- Projects that accumulate sufficient funds (100% or more) are *Selected* and funds are committed
- Any excess votes on selected projects are *Returned* to the IAB liaisons in a prorated fashion, to be used for voting in subsequent rounds
- At the end of the round, the *Running Balance* (i.e., remaining funds) is computed
- The list of *Partially Funded* projects along with remaining votes will be sent back to the IAB liaisons for the next round of voting
  - For single university projects in Round 1, *Partially Funded* projects are defined as projects that are at least 25% funded
  - To encourage *larger, multi-university* projects, for multi-university projects in Round 1, *Partially Funded* projects are defined as projects that are at least  $25\%/2 = 12.5\%$  funded (two university projects),  $25\%/3 = 8.33\%$  funded (three university projects), etc.
    - These must be collaborative efforts (approved by the Managing Director)

- To demonstrate the collaborative nature of the project, an extra page will be allowed in the White Paper proposal

#### 2.6.2.1.2 Round 2 and Subsequent Rounds of Voting:

- For subsequent rounds of voting, *Partially Funded* projects are reset to zero votes
- Then, the process for Round 1 voting is followed except:
  - To make it past Round 2, *Partially Funded* projects must be at least 50% funded (prorated for collaborative projects as described above)
  - To make it past Round 3, *Partially Funded* projects must be at least 75% funded (prorated for collaborative projects as described above)
- If after Round 2 or 3, more funds are left than projects, the remaining funds will be used to fund unfunded projects that are selected by maximizing an IAB *Satisfaction Criteria*
  - The *Satisfaction Criteria* takes into account the projects that were selected by IAB liaisons during Round 1, and it attempts to make sure all IAB liaisons get some project of interest selected

#### 2.6.3. IAB Lead

The IAB Lead and alternate Co-lead are elected by the IAB for a renewable one-year term. The IAB Lead conducts the business meetings of the IAB and acts as a spokesperson for the IAB to the CEC. In the event the IAB Lead departs due to health, retirement, or other reasons, a new Lead will be selected by the IAB. The Director will facilitate this process.

#### 2.6.4. Liaison Responsibilities

Each IAB member organization designates a liaison that serves as the lead contact between CHEST and the member organization. The liaison facilitates effective communication between CHEST and the member organization. The liaison is expected to be that member's primary representative at IAB meetings. In the event that the liaison is unable to attend, the liaison (or an official of the member organization) designates by proxy another individual to serve as the representative. The proxy is provided to the Director in advance of the meeting. The designated individual may either be from the member organization, from another IAB member, or from the member's host university faculty.

#### 2.6.5. Deliberation Attendance Limits

Attendance during IAB deliberations shall be limited to the liaison and two (2) additional representatives per currently active paid membership. This limit may be waived at the discretion of the IAB Lead or CHEST Director. Any waiver may be revoked by simple majority vote of the IAB.

#### 2.6.6. Research Project Priorities

The total of all IAB members' votes per project is reported to the CEC as the recommended project priorities for the coming year. This voting shall occur at a semi-annual IAB meeting or on an ad hoc basis as solicited by the CHEST Director or IAB Lead.

### 3. Industry-University Meetings

#### 3.1. Semi-Annual Meetings

For CHEST there are two meetings per year to present results of and obtain feedback on research activities. The meetings are conducted in a workshop format and include IAB business items; an overview of CHEST activities; confidential, pre-publication presentations; and discussions on current projects, ideas for new work, and an open forum for discussing current problems facing the community.

#### 3.2. Potential New Member Attendance

At the discretion of the IAB Lead, potential new members may attend portions of one CHEST meeting (non-deliberation portions of the meeting) in order to help evaluate whether their research interests are aligned with CHEST. All potential new members must sign a Non-Disclosure Agreement (NDA) prior to attending a meeting. The CHEST Director may send requests to waive the NDA requirement to the IAB. If no objection is received within 30 days, the NDA requirement may be waived.

### 4. Changes to Bylaws and University MOU Agreement

#### 4.1. Bylaw Amendments

The bylaws may be amended as necessary to accomplish CHEST objectives. Changes must be approved by the CEC and IAB. Approval requires a quorum (defined above) and approval by at least two-thirds (2/3) of the voting members present (in person or by proxy).

#### 4.2. MOU Amendments

Modifications to the University MOUs shall require the approval of the CEC and the responsible research administrators of the member universities.

### 5. Publications, Data, and Intellectual Property (IP)

#### 5.1. Publications

Review of university publications for IAB IP purposes shall be in accordance with Section E of the Membership Agreement of Industry Partners and the “Publications” Section of the Memorandum of Understanding (MOU) between University Partners of the CHEST.

#### 5.2. Electronic Data Repository

Projects supported by the CHEST shall maintain documentation of results and software at a Collaborative Innovation Hub or Ecosystem (including data repositories, code, test benches, etc.).

#### 5.3. Control of Intellectual Property (IP)

Distribution and licensing of IP falls under the legal framework of the standard NSF Membership Agreement for Industrial Partners and CHEST University MOU.

## 6. IAB Products and Services

### 6.1 IAB Preferred Products and Services

The CHEST is committed to strengthening the US industrial base and supporting its IAB members and US technologies. CHEST prioritizes the use of US foundries and other products and services provided by its IAB members. Besides the exceptions described below, when contracting for fabrication or purchasing other CHEST related products and services, CHEST projects will attempt to use IAB member products and services first. In the event products and services aren't compatible or available from an IAB member, CHEST will prioritize the use of US based products and services before non-US based companies.

### 6.2 Exceptions

Exceptions to 6.1 above include but aren't limited to:

- If IC fabrication and other products and services aren't compatible with CHEST project budgets, schedules, and commitments.
  - Current US brokerage-based access costs and schedules are a benchmark for fabrication cost comparison.
  - Similar cost comparisons can be performed for other IAB products and services.
- If a US based foundry does not offer a required technology.
- If a CHEST project has ties to a legacy technology making the cost and time to re-design to a US technology excessive.
- If a CHEST research project specifically targets offshore products and services.
  - An example of an exception would be for a project that targets post fabrication Trojan detection at untrusted foundries.
- If an NDA and license agreement between the IAB member and the CHEST academic institution can't be attained or attained within a timeframe to meet project milestones.

Note: The agreement will only apply to IAB funded CHEST research projects (i.e., regular projects voted on by the IAB).

- It does not cover CHEST research directly subcontracted and not reviewed or selected by the IAB.
- These subcontracts are negotiated to meet customer requirements who may or may not leverage IAB member services.

## 7. Additional Program Income Funds

From time to time, an individual or group of IAB members may want to provide “additional” Program Income funds to extend, demonstrate, or transition the research of a funded CHEST research project. An example reason would be to provide additional Program Income funds to further develop a result into a product.

- Only “additional” Program Income funds can be used for this purpose, not Program Income funds from regular membership dues.
- Only current full IAB members can provide additional Program Income funds.

#### 7.1. IAB Program Income Oversight

Expenditures of any and all “Program Income” funds (whether DoD IAA/MIPR or Industry funds) must be spent according to IAB recommendations and CHEST Bylaws.

#### 7.2. Reporting Requirements

Projects funded through additional Program Income must report to the IAB at the bi-annual CHEST IAB meetings (along with all other CHEST projects).