CENTER FOR BITS AND ATOMS

MIT's Center for Bits and Atoms (CBA) (*http://cba.mit.edu*) is an interdisciplinary initiative exploring the boundary between computer science and physical science. CBA studies how to turn data into things, and things into data. Its personnel have participated in projects ranging from the creation of among the first quantum computers and synthetic organisms, to the invention of microfluidic bubble logic and physical one-way cryptographic functions, up to the development of intelligent infrastructure and the automated assembly of discrete materials for record-setting ultralight aero and space structures.

CBA is funded by a mix of government agencies, corporate sponsors, and international collaborations. It was launched by a National Science Foundation award to create a unique digital fabrication facility that gathers tools across disciplines and length scales for making and measuring things. These include electron microscopes and scanning probes for nanostructures, laser micromachining and X-ray microtomography for microstructures, and multi-axis machining and multi-material 3D printing for macrostructures. These are supported by instrumentation for processing and characterizing materials and devices, and infrastructure for high-performance computing and communication.

CBA's tools are used to teach the popular rapid-prototyping subject MAS.863[J] How to Make (Almost) Anything, and its capabilities are shared through an outreach program to establish community fab labs, which have grown into a global network of over 2,000 sites in 125 countries.

CBA's students apply to work in participating research groups through associated academic departments, including the Program in Media Arts and Sciences (*https://catalog.mit.edu/schools/architecture-planning/media-arts-sciences*). Most of its graduate students are fully funded by research assistantships, and undergraduate students are supported through MIT's Undergraduate Research Opportunities Program (UROP) (*https://catalog.mit.edu/mit/undergraduate-education/academic-research-options/undergraduate-research-opportunities-program*).

The center is directed by Professor Neil Gershenfeld. Email the CBA office (*cba_info@cba.mit.edu*) or call 617-253-0392 for more information.