![Columbia Engineering — The Fu Foundation School of Engineering and Applied Science]

Technology Innovations for
Urban Living in the Face of COVID-19

STUDENT IGNITION GRANT: REQUEST FOR PROPOSALS

VISION

The COVID-19 crisis has dramatically altered the flow of everyday living, from work, education, transportation, and health services to dining, entertainment, and grocery shopping to emergency response and beyond, exposing weaknesses and the need for rethinking many aspects around the design, infrastructure, and functionality of our cities. Looking back to December, it is difficult to believe that life in New York City, along with life in major cities around the world, could grind to a halt. Urban centers like New York City and the surrounding Tristate region, including the Columbia campus, require a wide range of innovations as we reemerge into a COVID-ready future.

A safe and smooth reopening cannot just be a return to business as usual. Cities must face a complex set of problems, including density, aging infrastructure, and disparate community resources to reconstitute a stronger, more equitable, and more resilient living, learning, and working environment. Indeed the vibrancy and life of the Columbia community are fully intertwined with the vibrancy and life of the City itself. These urban-dwelling challenges and opportunities in New York City present a living laboratory where technological innovations can have an enormous scale impact. The University and the City are therefore uniquely positioned to contribute significantly to the recovery from this pandemic in a way that moves us into this "new normal"—toward a new, more resilient future.

The greatness of New York City together with innovative minds across Columbia will spawn technology-driven solutions and models that not only engineer a speedy recovery for New York, but also have the potential to shape and transform the City's infrastructure and systems, to define urban redevelopment, and to minimize future disruptions—whether they be from the next pandemic, superstorms and sea-level rise, energy shortages, or acts of terrorism. What New Yorkers say is true— if you can make it here, you can make it anywhere!

ACHIEVING THE VISION— STUDENT IGNITION GRANT: REQUEST FOR PROPOSALS (RFP)

Columbia Engineering is pleased to announce an anonymous gift that will provide 5-10 student ignition grants this Summer & Fall to inspire the creativity of Columbia students to develop technology-driven solutions to help propel New York City into a resilient new normal. This Request for Proposals seeks to source and fund innovative projects which develop and deploy advanced technologies, including artificial intelligence, machine learning, computational systems, algorithms, predictive modeling, design thinking, simulations, robotics, materials, chemicals, sensors, and devices

to speed New York's recovery, establish a new normal, and advance public health and medicine through new technologies and scalable models. These awards will support prototype development and venture formation in the above-described areas. Grantees will be provided unique opportunities to use the new Columbia MakerSpace for experimentation and testing. An Ignition Grant may be an excellent opportunity for teams who just completed or are currently competing in one of the Summer 2020 Student Design Challenges to continue their work toward a viable solution.

PROJECT AREAS

Proposals should focus on one of the following thematic areas, but if not, you can submit your idea under the 'Open Call':

1. SMART CITIES AND LOGISTICS (e.g., How can technology be a driver to enable better emergency response and allocation of resources? How can technology enable and optimize for safer, efficient travel throughout the city? How would policy and technology work together to optimize services?)

2. SMART BUILDING DESIGN AND SENSORS (e.g., How can technology enable a better understanding of air circulation in closed or open environments to limit viral spread? How can technology enable and optimize for safe occupancy, density, and foot traffic flow throughout a building?)

3. DISINFECTING AND MAKING SAFE WORK AND PUBLIC SPACES (e.g., How can technology be used to keep indoor environments free of microbes during closed or regular operating hours?)

4. IMPROVED DIAGNOSTICS (e.g., What technological approaches can lead to faster, cheaper, or more reliable community testing during a pandemic? How can technology be used to provide early warning of the potential spread of disease or identify the source of contagion in a community?)

5. OPEN CALL (e.g., What other technological interventions can help return NYC to near-full capacity and activity?)

STUDENT IGNITION GRANT PROPOSAL FORMAT ($5K-10K):

Student Teams interested in an Ignition Grant should submit a Pitch Slide Deck to seas-specialprojects@columbia.edu starting today through December 15, 2020. Up to 10 Ignition Grants will be awarded, on a rolling basis, this academic year. We encourage submissions to support the development of prototypes and collaborative projects with students outside of science and engineering. All current Columbia Engineering undergraduates and graduate students, as well as students from the College and General Studies, are eligible to submit proposals. Preference will be given to those teams that have not previously received an Ignition Grant for their venture.

Pitch Deck Instructions: Be sure to address the following topics in your slide deck. For assistance and more information, contact Ivy Schultz, Director of Entrepreneurship Programs (email: ischultz@columbia.edu).

- **Customer Problem** – What Covid-19 related problem does your idea attempt to address, and who is the customer/beneficiary? Be specific.
- **Product/Service** – Provide details on the product or service that your business venture would offer.
- **Market size** – What is the size of the total market? What is the size of the market you will target in the first 1-3 years?
- **Competitors and Competitive Advantage** – Who else is active in this area? How are you different from competitors, and how will you sustain that?
- **Market Validation** – Have you tested your idea with potential customers? If so, what were the results? If not, do you plan to, and how?
- **Management Team** – What capabilities does your team have to be successful?
- **Work Plan and Goals** – What are your goals for the next 12 months? Milestones: What will your key milestones be?
- **What will Ignition Funding support?** – Make sure to address both product development and business development activities. Note that half of the funding is dependent upon reaching your first set of goals. Please note any planned use of the Columbia Makerspace.
- **Timeline** – At a minimum, you should address what you will do over the next 6-12 months. Make sure to explain the details of your planned activities, including the what, who, and how.
- **Financial Information** – What are your timeframes to achieve scale and revenue? Please describe how much funding you are seeking, how much you have raised (if any), and your estimated monthly operating expenditures.

PROPOSAL DEADLINE:

Student Ignition Grant Proposals will be accepted and awarded on a rolling basis until December 15, 2020. Awardees will be notified within two weeks from proposal submission and acceptance.

We look forward to welcoming proposals this summer.

Sincerely,

Mary Boyce