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University of Washington CoMotion, Amazon Add 10 Amazon Catalyst Fellows

SEATTLE, Wash., May 30. 2017 – Amazon Catalyst has awarded ten grants from its winter quarter of applicants to a group of University of Washington (UW) students, faculty, and staff to fund big ideas across all disciplines. Amazon Catalyst is a collaboration between CoMotion at UW and Amazon to encourage innovation within the UW community and awards grants from $10,000 to $100,000 per project. The goal of the program is to inspire people to think big, invent solutions to real-world problems, and make a positive impact on the world. Open to all three UW campuses and all disciplines, Amazon Catalyst provides the winners with mentorship, community through the Amazon Catalyst Fellows, and funding. Amazon Catalyst is not a traditional research fund; it is a different kind of funding model to stimulate big ideas with immediate impact.

"We are very impressed with the quality of applications we received in this most recent round," said Vikram Jandhyala, UW Vice President for Innovation Strategy and Executive Director of CoMotion, the University of Washington's collaborative innovation hub. "The Amazon Catalyst program is a great addition to the University of Washington's offerings because it provides an equal opportunity for all members of the University community, from new undergraduate students to senior faculty and staff, an equal opportunity to make their dream projects a reality."

The spring deadline for Amazon Catalyst is June 9, 11:59 PM PST.

The ten recipients and their projects are in fields including healthcare, environment, business communications, and 3D printing. They are listed below:

3D Printing:

- **Taking 3D Printing to the Next Level**
    - Stereolithographic 3D printing has, to date, been mostly monochromatic. This is good for the purposes of standardization, but offers little in the way of versatility if the user wants to print an object made out of more than one material. By taking advantage of resin materials, this team has enabled 3D printers to produce objects made of more than one material with complex shape, composition, and material properties.
    - *Andrew Boydston, Johanna Schwartz, John Goldstone*
- **3D Printing With Air**
    - Every year, more than 600 billion pounds of plastic are produced worldwide, 90 percent of which ends up in landfills or the environment at large. One way to reduce the amount of plastic in the environment is to produce less of it. A team of mechanical engineers is accomplishing this by using 3D printers to print air-filled plastic bubbles, thus creating products that are up to 90 percent air and only 10 percent plastic.
    - *Andrei Nicolae, Vipin Kumar, Krishna Nadella,*

Business Communications:

- **Deepening Business Networks in Tanzania and Beyond**
    - Billions of people in developing countries across the world now have mobile phones, but they often lack good ways to find each other. This team will develop, launch, and evaluate a USSD telephone directory that will allow users to search for the contact information of both formal and informal businesses close to them.

  Brian Dillon, Joshua Blumenstock, Jenny Aker

Environmental:

- **Cloud Instruments**
    - Better batteries are necessary to deliver a carbon-neutral future by reducing the need for fossil-fueled powered vehicles and stations. However, over the past 25 years, costly testing equipment and limited reliability issues have slowed the pace of battery research and development. A team of UW engineers plans to merge modern software (cloud) with battery testers (instruments), to produce a novel data analysis platform that will solve both cost and performance issues at once. This will give scientists and engineers the ability to aggregate and extract subtle battery performance trends that were previously invisible.
        - *Robert Masse, Dan Shea, Richard Revia, Slava Agoafonov, Wyatt Homola, Sayna Parsi*
- **The Bionic Leaf**
    - Currently, there is too much CO_2 sequestered in the Earth's atmosphere and it is no longer enough just to limit carbon dioxide emission to prevent catastrophic effects. Bioengineers at UW have built an open-source kit for researchers and entrepreneurs to build "bionic leaves" to actively remove excess carbon dioxide using negative emissions technologies.
    - *Mark Minie, Michael Galdzicki*

Healthcare:

- **IRA, the Robot Surgical Assistant**
    - Major surgical procedures require a master surgeon and one or more assistants. On top of that, the current high cost of surgical care demands the best use of highly skilled assistants. The Intelligent Surgical Assistant (IRA) solves this problem by learning progressively and responding to surgeon requests for precise tasks. Trained to the exact preferences of each surgeon, IRA will lead to a reduction in errors during precise and potentially dangerous operations.
    - *Blake Hannaford, Laligam Sekhar, Niveditha Kalavakonda*
- **Child-Friendly Iron Supplements**
    - Iron deficiency anemia affects more than two billion people worldwide, particularly in low-resource settings, where women and young children are at the greatest risk. While there are existing iron supplements, getting kids to take them is a challenge. Iron tablets can be hard to swallow, liquid iron stains teeth, and injections can be painful. To solve this, a team of UW bioengineers has teamed with PATH – a nonprofit leader in global

health innovation – to develop a simple iron supplement strip made out of nanofibers that dissolves in the mouth within seconds.
    - *Christina Nhan, Namratha Potharaj*
- **SafeShot**
    - In developing regions, the shortage of medical supplies, including needles, is a huge challenge. The average hypodermic needle is re-used four times before being disposed of, thus increasing the risk of spreading blood-borne diseases. To combat this, two UW students have developed SafeShot, a cap for the top of multi-dose medication vials that contains a chamber with liquid to sanitize the needles as they pass through the cap.
    - *Stephen Polyak, Emily Willard, Katherine Brandenstein*
- **Reversing Tooth Discoloration**
    - Every year, Americans spend billions of dollars on tooth whitening products. However, most of these products remove tooth discoloration by dissolving the stained mineral layer from the surface of teeth, thereby damaging the tooth's enamel, which may lead to cavities or gum recession. A team at UW is crafting a lozenge that will add new mineral layers to discolored teeth, whitening by addition rather than subtraction, that will help maintain healthy teeth and gums.
    - *Deniz Yucesoy, Hanson Fong, Sanaz Saadat, Sami Dogan*
- **UW BIOFAB: A Cloud Laboratory for Genetic Engineering**
    - Biomedical laboratories, entrepreneurs, and researchers need data to develop medical therapies. However, the complex process for experiments can be error-prone, which often leads to longer timelines and higher costs. Now, a UW team will expand the powerful BIOFAB, a full-service laboratory that will provide anyone with a laptop, access to full-scale molecular biology and cell engineering resources, all at a reasonable cost. *Eric Klavins, Justin Vrana, Orlando DeLange, Michelle Parks*

About CoMotion

CoMotion at the University of Washington (UW) is the collaborative innovation hub dedicated to expanding the economic and societal impact of the UW community. By developing and connecting to local and global innovation ecosystems, CoMotion helps innovators achieve the greatest impact from their discoveries. We deliver the tools and connections UW researchers and students need to accelerate the impact of their innovations.

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