# WRF/ITHS Summer Commercialization Fellows Projects 2026

**LUSS – Lung Ultrasound Sensor for Monitoring Pulmonary Edema**

**Project Leads: Adeyinka Adedipe, Emergency Medicine & Tatiana Khoklova, Mechanical Engineering**

Pulmonary edema from heart failure can progress quickly, requiring frequent serial assessments of lung fluid for medication dosing, discharge timing in the hospital (e.g., ED and ICU), and monitoring at the clinic and home. Unfortunately, traditional lung ultrasound requires a skilled operator and is either too expensive for frequent measurements or simply not available outside of hospital environments. To provide patients with the right care at the right time, we have developed an automated, miniature, non-imaging lung ultrasound sensor (LUSS) that is simply placed on the chest, providing lung edema assessment on demand. LUSS is lightweight and easy to deploy, utilizing advanced non-imaging ultrasound technology that detects unique acoustic signals indicative of fluid accumulation in the lungs. Described as an "EKG for the lungs," the device features a custom-engineered probe, a flexible adhesive patch with intuitive anatomical guides, and a simple interface displaying red/yellow/green prompts to guide intervention decisions.

**PolluxBio – A Novel Blood Test to Predict and Diagnose Preeclampsia**

**Project Lead: Cheri Fang, Bioengineering**

Preeclampsia is a serious vascular disorder that arises from abnormal placental blood vessels and can progress to multi-organ failure, remaining a leading cause of maternal and fetal morbidity and mortality worldwide. Current guidelines recommend low-dose aspirin for pregnant women at elevated risk for preeclampsia, starting after 12 weeks of gestation and ideally before 16 weeks, but risk is defined by broad clinical factors such as chronic hypertension, high BMI, advanced age, and prior preeclampsia. Because many patients meet one or more of these criteria, more than 80% of pregnant women qualify for aspirin prophylaxis, resulting in non-personalized care and variable adherence. PolluxBio is developing a novel blood test that fills this gap by enabling biomarker-informed prediction of preeclampsia as early as 12 weeks of gestation, before symptoms arise. The same assay can also help distinguish true preeclampsia from other causes of hypertension in pregnancy once symptoms appear, supporting more confident diagnosis and tailored care pathways. A Summer Fellow will map and prioritize buyer and payer segments; assess regulatory and reimbursement pathways; and analyze revenue models and cost-effectiveness to quantify the value proposition for health systems, clinicians, and insurers.

**PFASPure – Ensuring Safe Drinking Water for All**

**Project Lead: Jessica Ray, Civil and Environmental Engineering**

PFAS "forever chemicals" are a family of toxic, man-made, carcinogenic chemicals present in drinking water and in the environment. These chemicals are extremely difficult to degrade and currently evade many treatment technologies designed to remove contaminants from drinking water. Activated carbon is the industry standard for filtering contaminants from drinking water. It is used in household countertop filters (e.g., BRITA) as well as in municipal water treatment facilities. However, activated carbon is unable to remove many PFAS that are known to threaten human health. Our PFASPure technology is designed by modifying activated carbon to increase its affinity for adsorption of PFAS in drinking water providing an innovative solution to a critical problem of global PFAS drinking water contamination. Licensing options for PFASPure include household water purification companies such as BRITA® that are actively seeking approaches to remove PFAS among their portfolio of water filters as well as large-scale municipal water treatment facilities required by state and (eventually) federal regulations to eliminate PFAS from their finished drinking water. A Summer fellow would help us continue customer discovery to learn more about the landscape of PFAS treatment needs and opportunities to scale our technology to increase production.

**Next Generation Regenerative Biologics**

**Project Lead: Ashish Phal, Institute for Protein Design**

Many patients with chronic epithelial injuries and peripheral nerve-related conditions face prolonged healing timelines, frequent clinic visits, and a high risk of complications, creating substantial and growing costs for health systems. Although growth factors like NGF can promote repair, real-world effectiveness is often limited by poor stability of the compound at the site of injury, short local persistence, and practical challenges around dosing and manufacturing. To address these gaps, we are developing a de novo protein-based agonist platform that generates next-generation regenerative biologics optimized for potency, durability, and deployability in clinically relevant environments. Our lead program focuses on synthetic TrkA agonists designed to reproduce (and potentially improve upon) NGF's pro-healing activity while offering enhanced stability and tunable pharmacology. The same design-and-screen engine also produces agonists across additional pathways (e.g., FGF, PDGF, Tie2), enabling a broader pipeline in wound healing and nerve repair. We are currently finalizing lead optimization and validation to support focused preclinical studies prior to broader partnering and commercialization. In preparation for this next phase, a Summer Fellow would help develop our go-to-market plan by performing customer discovery with clinicians, payers, and potential strategic partners, assessing the regulatory and reimbursement landscape for locally delivered biologics, and helping define a sustainable business model and partnership strategy.