WILLIAM E. SCHNABEL, Ph.D., P.E.

SUMMARY

Dynamic, innovative, and student-centered leader with 10+ years of executive-level, higher education administrative experience seeks to pursue an optimistic vision for the University of Alaska Fairbanks.

EDUCATION

B.S., Chemistry, Purdue University
M.S., Environmental Engineering, University of Iowa
Ph.D., Environmental Systems Engineering, University of Alaska Fairbanks

EMPLOYMENT OVERVIEW

1/19 – Present	**University of Alaska Fairbanks** *Dean, College of Engineering and Mines*
7/16 – 12/18	**University of Alaska Fairbanks** *Director, Institute of Northern Engineering* *Professor, Dept. of Civil and Environmental Engineering*
1/15 – 6/16	**University of Alaska Fairbanks** *Interim Director, Institute of Northern Engineering*
8/13 – 6/16	**University of Alaska Fairbanks** *Associate Professor, Dept. of Civil and Environmental Engineering*
7/09 – 12/18	**University of Alaska Fairbanks** *Director, Water & Environmental Research Center*
9/07 – 8/13	**University of Alaska Fairbanks** *Research Assistant Professor, Research Associate Professor*
8/06 – 9/07	**Golder Associates Inc., Duluth MN** *Senior Project Engineer*
1/02 – 7/06	**University of Alaska Anchorage** *Assistant Professor, School of Engineering*
6/00 – 11/01	**Ecolotree Incorporated, Iowa City, IA** *Project Engineer / Project Manager*

LEADERSHIP EXPERIENCE

2019 – Present **Dean, UAF College of Engineering and Mines**

- Established strategic vision and oversaw daily operations of a dynamic, multifaceted, Arctic-focused engineering college comprising ~100 faculty/staff, ~500 students, and ~300,000 ft^2 of research, laboratory and classroom facilities. Delivered 700+ graduates to the state and national engineering workforce.

- Leveraged an annual ~$7M unrestricted academic budget and annual ~$2M unrestricted research budget to produce mission-critical results. Grew new student enrollments by 24% from AY19 to AY25, and increased research expenditures from $11M to $17M over the same period.

- Reduced dependance on state funds. Maintained a net positive fiscal year-end budget every year despite managing a 22% decline in state general fund allocation.

- Championed the unit's mission, criticality, and history, yielding $6.3M in philanthropic support contributed by 900+ collective donations. Secured the alumni large donor support necessary to complete the build-out of the ConocoPhillips High Bay, with inaugural structural tests scheduled to begin in 2026.

- Consistently and successfully advocated for support of Arctic and engineering-related initiatives to the federal and state delegations through frequent interactions with the UA Office of Government Affairs and regular visits to Washington D.C. and Juneau.

- Initiated, collaboratively developed, and delivered a metrics-driven CEM Strategic Plan in AY24-25 to provide a blueprint for the unit's sustained academic and research growth and achievement.

Revitalizing Key Academic Programs

- Reversed downward undergraduate enrollment trends through Strategic Enrollment Planning and related initiatives. Enrollments witnessed sustained upward trends beginning in 2020 for first-year students, 2021 for sophomores, 2022 for juniors, and 2023 for seniors.

- Promoted and expanded accelerated master's degree (4+1) programs as a means to encourage a higher fraction of B.S. students to pursue graduate degrees. Graduate enrollment in 4+1 programs increased five-fold between 2019 and 2025.

- Developed strategic partnership between CEM faculty and the Alaska Center for UAS Integration (ACUASI) to launch a new B.S. program in Aerospace Engineering. The program was initiated in response to a defined state need to further develop Alaska's growing aerospace industry.

- Developed a strategic partnership between CEM faculty and the Alaska Center for Energy and Power (ACEP) to create and deliver a new B.S. program in Energy Resource Engineering. The program was developed in close coordination with Alaska's energy sector to ensure that graduates would have the background to work in Oil & Gas and/or the emerging renewable sectors.

- Collaborated with UAA College of Engineering and industry partners to create the Women in Engineering Initiative. The initiative is designed to boost future enrollments and expand Alaska's engineering workforce by increasing the visibility of female engineering role models in k-12, post-secondary and workplace settings.

- In AY23/24, oversaw a comprehensive, college-wide and successful effort to earn ABET re-accreditation for all undergraduate B.S. programs. The initiative required substantial effort and close coordination between faculty and staff in every department across the college, and its positive outcome served to validate CEM's commitment to programmatic effectiveness and student success.

Modernizing the Student Experience

- Unified and incentivized faculty across CEM programs to create a shared asynchronous online introductory course (ES100X – Engineering Alaska) in response to pandemic-related challenges. The course highlights all engineering disciplines offered at UAF, and frames fundamental engineering principles through a compelling lens of engineering challenges unique to Alaska. The course has become a cornerstone of the CEM first year experience and serves as a recruiting tool for promising high school students statewide.

- Established a student-run Makerspace to host bridging programs, credit-bearing design courses, and open-access periods available to all members of the UAF community. The Makerspace supports an innovative design course (ES100L – Makerspace Alaska), providing first-year students with an entry-level analog to the capstone courses taken during their senior year.

- Partnered with the Fairbanks North Star Borough School District to offer a CEM course (ES100L-Makerspace Alaska) on site in local high school makerspaces. This dual-credit partnership allows promising high school upperclassmen to earn UAF engineering credits as part of their curriculum. Discussions are currently underway to expand the program to Anchorage and other regions of Alaska.

- Partnered with the College of Natural Science and Math to develop and deliver an innovative new course in Applied Engineering Mathematics. The course boosts the success of underprepared students by introducing pre-calculus level concepts through the lens of applied engineering problems. In order to demonstrate CEM's commitment to bolstering student success, I personally co-taught the course in Spring 2024.

- Partnered with the Alaska Department of Transportation & Public Facilities to institute a novel internship program. Established in 2025, Career Pathways offers internship experiences for students from a variety of disciplines across UAF, and stands apart from similar efforts by providing internships that begin immediately after a student's first year of study.

Embrace and Grow a Culture of Belonging

- Fostered a robust college bridging program targeting students in rural Alaska. Since their introduction into the CEM community, the Upward Bound and T3 bridging programs have engaged and inspired 1,000+ primarily rural Alaska students through place-based, experiential learning. The CEM-based bridging programs have collaborated with and coordinated activities at the UAF Chukchi, Northwest, Kuskokwim, and Bristol Bay campuses, as well as at rural high schools throughout Alaska.

- Enriched morale and unit identity through consistent financial and promotional support for student co-curricular clubs and competitions. In return, the students served as ambassadors of excellence for UAF. Among the hundreds of engineering colleges competing in the annual AISC Steel Bridge Competition, for example, UAF has placed in the national Top-10 on six occasions since 2019.

- Invested in CEM's future success through the strategic hire of 16 dynamic tenure track and research faculty members, initiation of a formal Faculty Mentorship Program, creation of an annual unit-specific staff/faculty recognition award program, nomination and recognition of multiple faculty and staff for university-wide Usibelli and/or Cornerstone awards, and unwavering advancement of a safe, rewarding, and professional workplace.

Achieve R1 Research Status

- Oversaw restructure of the Institute of Northern Engineering into three distinct major research centers. Each area is specifically targeted to address state economic development needs, capitalize on emerging federal priorities, and leverage Alaska's industrial base.

- Partnered with the Geophysical Institute and others to form the Alaska Critical Minerals Collaborative, a multi-unit initiative designed to streamline efforts across the University of Alaska in the pursuit of critical minerals related research.

- Initiated and championed an effort to develop unit-level R1 Implementation Plans for all UAF academic programs offering PhD degrees, and all UAF research units providing support for PhD students. Those plans, in conjunction with the campus-wide R1 Implementation Plan, were based on the years-long effort of various faculty/staff R1 working groups, and represent the next step in UAF's pursuit of R1 status.

2015 – 2018 Director, UAF Institute of Northern Engineering

- Established strategic vision and oversaw daily operations of a nationally-recognized engineering research enterprise. Leveraged ~$4M/year in unrestricted revenues to oversee 5 discrete thematic research centers, ~15 full-time research faculty, ~35 collaborating academic faculty, and ~40 administrative and research staff.

- Sustained financial productivity (~$11.5M/year Restricted Research Revenues + ~$1.3M/year Indirect Cost Recovery) over a 4-year period witnessing a 36% decrement in state funding allocation.

- Doubled the total value of new research awards from $9.2M in FY16 to $18.7M in FY18. This was accomplished by inspiring a broader array of faculty PIs to pursue larger grants.

- Regularly promoted the value of engineering-related research through personal advocacy to the federal congressional delegation, agency heads, state legislators, and other key decision-making entities.

- Worked closely with university leadership, industry stakeholders, and community leaders to successfully advocate for state and philanthropic support towards completion of the Joseph E. Usibelli Engineering Learning and Innovation Building.

- Invested financial resources and provided administrative oversight for the Alaska Center for Energy and Power, accelerating the unit's eventual emergence as an independent UAF research institute.

- Enhanced faculty success by investing in high-level administrative staff. INE's unit Award Ratio (proposals awarded/proposals submitted) exceeded 50% every year, and represented the highest Award Ratio among UAF's large research units.

- Developed and implemented a novel Research Overload Model to incentivize well-funded faculty researchers to replace F1 (state-sponsored) time with externally-funded research hours. This resulted in higher take-home pay for faculty members, a higher amount of ICR generated for the research unit, and a more expedient completion of research projects.

- Prioritized research mentorship for junior faculty members. Initiated and supported regular meetings for early-career researchers pursuing development-related grants.

- Proposed, won, and served as PI for large external research projects in order to fulfill INE's research mission, provide project opportunities for junior faculty, and contribute to INE's financial stability in a difficult budgetary climate. Attracted approximately $3M as PI of new external awards while serving in the INE Director role.

2009 – 2018 Director, UAF Water and Environmental Research Center

- Oversaw strategy, budgets, personnel, infrastructure, and external engagement efforts for an interdisciplinary INE-based research center comprising approximately 20 faculty members and 10 staff members. Leveraged an annual state allocation of approximately $400k to support faculty efforts garnering $5M+ in annual research revenues.

- Served as PI for Alaska's National Institute for Water Resources (NIWR) 104(b) grant program. Distributed approximately $800,000 in research awards supporting dozens of individual graduate and undergraduate student projects through NIWR. Promoted the program via annual advocacy visits with the federal delegation beginning in 2009.

- Established and oversaw a Sloan Foundation-funded graduate fellowship program for the Alaska Native Science and Engineering Program (ANSEP).

SUMMARY OF SCHOLARLY WORK

- Garnered $15M+ in UAF research awards focused on arctic landscape-level environmental processes, site remediation strategies, and infrastructure development.

- Published 50+ peer-reviewed articles, research reports, and/or related professional communications designed to disseminate knowledge pertaining to informed development of Arctic and Subarctic regions.

- Professor of Environmental Engineering tenured in the UAF Department of Civil, Geological & Environmental Engineering. Teaching interests surrounded topics related to Fluid Mechanics, Water Resource Engineering, Environmental Mitigation, and Research Communication.

- Served as primary mentor and graduate committee chair for over a dozen successfully-completed graduate students, including three Ph.D. graduates.

COMMUNITY ENGAGEMENT

Deeply-immersed in the broader Fairbanks community. Professional engineer (AK License No. AELV14254) coordinates and presents at technical networking functions; speaks at Chamber of Commerce and Rotary meetings; served in the USAF Honorary Commander program; serves on the Board of Directors for the Fairbanks Concert Association; regularly participates in community-wide athletic competitions; routinely patronizes cultural, performing arts and athletic functions; performs in musical ensembles throughout the region; and frequently volunteers for non-profit events.

APPENDIX – DETAILED SCHOLARLY WORK

UNIVERSITY TEACHING EXPERIENCE

- **Engineering Math** (ES186); Spring 24
- **Fluid Mechanics** (ES 341); Fall 13, Spring 15, Fall 15; undergraduate level (UAF)
- **Special Topics (Writing)** (ENVE 650); Spring 15; graduate level (UAF)
- **Engineering Research Communication** (ENVE 693/CE601); Spring 14, 16, 17; graduate level (UAF)
- **Water Resources Engineering** (CE 344); Fall 11; undergraduate level (UAF)
- **Remediation** (EQE 613); Spring 02, 03, 05; graduate level (UAA)
- **Water Quality Management** (EQE 602); Fall 02, 03, 05; graduate level (UAA)
- **Groundwater Dynamics** (CE 663); Spring 04, 06; graduate level (UAA)
- **Engineering Graphics** (ES 103); (Team taught) Fall 04; undergraduate level (UAA)
- **Introduction to Environmental Engineering** (CE 441); Fall 05; undergraduate level (UAA)

FUNDED RESEARCH

PI **INFEWS/T3: Coupling infrastructure improvements to food-energy-water system dynamics in small cold region communities: MicroFEWs** (2017-2021). Led an interdisciplinary effort to observe, model, and predict the impacts to food, energy, and water systems conferred by incorporating renewable energy sources to rural community microgrids. **Funding Agency: National Science Foundation. Grant Total: $2,419,338**

PI **UAF Participation in Denali Commission's Initiative for Environmentally Threatened Communities** (2016-2018). Organized and led an interdisciplinary team to evaluate threats of erosion, flooding, and permafrost degradation in Alaska's rural communities. **Funding Agency: The Denali Commission. Grant Total: $417,000**

PI **Ice Thickness Measurements on the Kotzebue Sound Using Ground Penetrating Radar.** (2017). Conducted GPR surveys of Kotzebue Sound ice to evaluate potential ice road routes for a major construction project. Funding Agency: **Alaska Department of Transportation & Public Facilities. Grant Total: $25,984**

PI **GCI Fiber Optic Project** (2016). Led an interdisciplinary team to evaluate options for connecting remote Arctic communities via fiber optic cable. Investigation focused on the impacts of placement methods (trenching, direct lay, poles) across permafrost-impacted, polygonal ground. **Funding Agency: General Communications Incorporated. Grant Total: $67,000**

PI **Herder Burner: A Field Test of Chemical Herders for In Situ Burning of Crude Oil** (2014-2015). Constructed a test basin and performed meso-scale field trials of aerial applied chemical herders for in situ burning. **Funding Agency: SL Ross; the International Association of Oil and Gas Producers. Grant Total: $692,452**

PI **Ice Thickness Measurements on the Yukon River Using Ground Penetrating Radar.** (2013). Conducted GPR surveys of Yukon River ice to evaluate potential ice road routes to Tanana, Alaska. Funding Agency: **Alaska Department of Transportation & Public Facilities. Grant Total: $18,823**

PI **Geophysical Methods for Arctic and Subarctic Transportation Planning.** (2010-2014). Evaluated the use of electrical resistivity tomography (ERT) for visualizing frozen ground characteristics in continuous and discontinuous permafrost zones. Funding Agency: **US Department of Transportation/Alaska Department of Transportation & Public Facilities. Grant Total: $195,262**

PI **North Slope DSS: A GIS-Based Support System for Informing Water Resource Decisions.** (2008-2012). Developed new and modified existing water resource models for inclusion into a modular decision support framework. The decision support system was designed for use by industry, regulatory agencies, scientists, municipal planners, and other stakeholders associated with Alaskan North Slope water resources. **Funding Agency: US Department of Energy. Grant Total: $1,048,032**

PI **Using Modeling to Assess CO2 Sequestration, Engineering, Environmental, and Economic Issues Related to a Proposed Coal-to-Liquids Plant in Interior Alaska.** Conducted measurements, evaluation, and modeling to investigate feasibility of offsetting CO2 production of a proposed industrial facility through the cultivation of biomass fuels. **Funding Agency: US Air Force. Grant Total: $261,278**

PI **Impacts of Cold Region Open Dumps on Microbial Water Quality (2009 – 2010).** Surveyed microbial water quality in rural Alaskan villages associated with solid waste sites. Evaluated possible feedback mechanisms between microbial water quality and human health. **Funding Agency: USGS/National Institute for Water Resources. Grant Total: $20,000**

PI **Kuparuk Foothills Hydrology Study** *(*2006 – 2011*).* Evaluated quality and quantity of lake water resources for industrial use on Alaska's North Slope. Contributed to an interdisciplinary multi-project initiative to characterize surface water flow processes on the North Slope. **Funding Agency: Alaska Department of Transportation & Public Facilities. Grant Total: $2,188,046**

PI **Partitioning Behavior of Pathogen Indicator Organisms in Snowmelt** (2008 – 2009). Investigated the survivability and partitioning dynamics of fecal indicator organisms associated with agricultural activities. Constructed snow lysimeters to capture snow and assess snowmelt water quality. **Funding Agency: USDA-CSREES. Grant Total: $99,951**

PI (UAA) **Sources and Dynamics of Fecal Coliform Bacteria in University Lake** (2005-2006). Employed bi-weekly sampling and source tracking to investigate origin and fate of fecal indicator bacteria in an impacted lake. **Funding Agency: Alaska Department of Environmental Conservation**

PI (UAA) **Characterizing Sources and Growth Potential of Indicator Bacteria in Cold Region Streams** (2005-2006). Modified the Antibiotic Resistance Analysis source tracking method for use in cold region water bodies. **Funding Agency: USGS/UAF Water and Environmental Research Center**

PI (UAA) **An Evapotranspriation Landfill Cap at Elmendorf Air Force Base** (2004-2010). Modeled, designed, constructed, and monitored two pilot-scale basin lysimeters for the assessment of evapotranspiration covers employed at cold region landfills. Developed a method utilizing Electrical Resistivity Tomography to visualize and quantify vadose zone soil moisture. Project led to the installation of a full-scale evapotranspiration cover. **Funding Agency: USAF/Weston Solutions**

PI (UAA) **Developing Sustainable Waste Management Technologies in Sichuan, China** (2005). Project was performed as a supplement to an Engineers Without Borders student group trip. Undergraduate research involved literature review, presentation, and design of sustainable water/wastewater/waste management solutions for use in a remote Chinese village. **Funding Agency: University of Alaska Anchorage**

PI (UAA) **Spatial, Temporal, and Phase Distribution of Fecal Coliform Bacteria in Chester Creek** *(*2004-2005). Employed weekly sampling and spatial analysis to develop a conceptual model and propose best management practices for an urban stream. **Funding Agency: Alaska Department of Environmental Conservation**

PI (UAA) **Metals Uptake from Surface Waters Through a Sand Filter Willow Wetlands** (2003). Constructed a greenhouse wetlands to investigate the use of willow plantations as a best management practice for surface water quality. **Funding Agency: Alaska EPSCoR**

Co-PI **Hydro-Sedimentological Monitoring and Analysis Program for Material Sites on the Sagavanirktok River: Phase 1** (2015 – 2019). Collect river discharge and sediment measurements associated with resurfacing efforts on the Dalton Highway. **Funding Agency: Alaska Department of Transportation & Public Facilities. Grant Total: $1,455,716**

Co-PI **Phytoremediation in Kaltag, Alaska. Phase III: Phytoremediation of Soil Contaminated with DRO and 1-chloro-octadecane - Initial Field Implementation** (2014-2015). Installed a field test plot to mitigate contaminated soil in Kaltag, AK. **Funding Agency: Alaska Department of Environmental Conservation. Grant Total: $25,000**

Co-PI **Meteorological and Hydrological Monitoring and Analysis Program for the Ambler Corridor: Phase 1-3** (2012-2015). Monitoring, modeling, and evaluating watershed processes in four remote rivers to support planning efforts for a transportation corridor to the Ambler mining district. **Funding Agency: Alaska Industrial Development and Export Authority**. **Grant Total: $1,373,519**

Co-PI **Water, Energy, and Food Security in the North: Synergies, Tradeoffs, and Building Community Capacity for Sustainable Futures** (2013-2017). The Sustainable Futures North (SFN) project was concerned primarily with developing a more sophisticated understanding of the interactions among environmental security, and developing natural resources in the North American Arctic and Subarctic regions. **Funding Agency: National Science Foundation. Grant Total: $1,227,455**

Co-PI **Regional Assessments of Vulnerability and Environmental Security—Water Security in a Changing Coastal Environment** (2011-2013). Performed an integrative assessment of water assets and vulnerability in the Bristol Bay region of Alaska, and use this activity as a 'sandbox' for defining features and requirements, towards the development of a GIS-based decision support system. **Funding Agency: National Oceanic and Atmospheric Administration. Grant Total: $134,560**

Co-PI **Surface Water Flow Monitoring and Analysis for the North Slope Umiat Corridor** (2009-2014). Worked with an interdisciplinary team to conduct hydrologic/meteorologic monitoring and analysis to support resource development activities on Alaska's North Slope. Focused on collecting snowmelt discharge measurements of remote arctic rivers. **Funding Agency: Alaska Department of Transportation & Public Facilities. Grant Total: $2,734,784**

Co-PI **Data Rescue, Inventory, and Network Analysis of Hydroclimate Data in Arctic Alaska** (2010-2011). Created and populated a searchable database of hydrologic and meteorological data collected by state and federal agencies in Arctic Alaska. **Funding Agency: U.S. Fish and Wildlife Service. Grant Total: $196,638**

Co-PI **Attenuation of Herbicides in Sub Arctic Environments** (2008-2010). Performed field and lysimeter fate and transport studies on a suite of herbicides proposed for use along Alaskan transportation corridors. **Funding Agency: Alaska University Transportation Center. Grant Total: $209,830**

Co-PI **Sagavanirktok River/Bullen Point Hydrology Project** (2008 – 2010). Worked with an interdisciplinary team to conduct hydrologic/meteorologic monitoring and analysis to support resource development activities on Alaska's North Slope. **Funding Agency: Alaska Department of Natural Resources. Grant Total: $999,352**

Co-PI (UAA) **Independent Third Party Review of the Proposed Kincaid Estates Subdivision, Anchorage, Alaska** (2005). Surface water infiltration and groundwater contaminant fate/transport characteristics were assessed to predict the impacts of a proposed subdivision upon a local aquifer. **Funding Agency: Alaska Legislature**

Co-PI (UAA) **Evaluation of Stormwater Treatment by Constructed Wetlands in Alaska** (2002 -2003). The performance of three wetlands constructed for stormwater treatment was evaluated with respect to contaminant mitigation and design performance over a period of two field seasons. **Funding Agency: Alaska Department of Transportation and Public Facilities**

Co-PI (UAA) **Fundamental and Applied Research on Water Generated during the Production of Gas Hydrates** (2003). Treatment options for water and wastewater produced during methane hydrate extraction were evaluated for use at North Slope drilling installations. **Funding Agency: Anadarko Petroleum Corporation**

Co-PI (UAA) **Community Based Service Learning Minigrant: Collection, Analysis, and Dissemination of Water Quality Data for the Chester Creek Watershed** (2003). Collaborated with faculty members from Geology and Biology departments to institute a student-run water quality sampling and assessment program. **Funding Agency: UAA**

SELECTED PUBLICATIONS

- Huntington, H., J. Schmidt, P. Loring, E. Whitney, A. Aggarwal, A. Byrd, A. Dotson, D. Huang, B. Johnson, J. Karenzi, H. Penn, A. Salmon, D. Sambor, W. **Schnabel**, R. Wies, and M. Wilbur (2021). "Applying the Food-Energy-Water Nexus Concept at the Local Scale." Nature Sustainability. DOI: 10.1038/s41893-021-00719-1.

- **Schnabel**, W., D. Goering, and A. Dotson (2020). "Permafrost Engineering on Impermanent Frost." *The Bridge*, Spring 2020, National Academy of Engineering.

- Whitney, E., W. **Schnabel**, S. Aggarwal, D. Huang, R. Wies, J. Karenzi, H. Huntington, J. Schmidt, and A. Dotson (2019). "MicroFEWs: A Food-Energy-Water Systems Approach to Renewable Energy Decisions in Islanded Microgrid Communities in Rural Alaska." Environmental Engineering Science. DOI: 10.1089/ees.2019.0055

- Petty, T.R., J.B. Gongwer and W.E. **Schnabel** (2018). "Bridging Science-Water Policy Action Boundaries: Information Influences on U.S. Congressional Legislative Staff Decision Making." Policy Sciences. DOI: 10.1007/s11077-018-9311-y

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- **Schnabel**, W., Munk, J. and Byrd, A. (2014). "Field Note: Comparative Efficacy of a Woody Evapotranspiration Landfill Cover Following the Removal of Aboveground Biomass." International Journal of Phytoremediation DOI: 10.1080/15226514.2013.862210
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