Multiple Faculty Positions
School of Applied Sciences and Engineering
Universidad EAFIT

The School of Applied Sciences and Engineering at Universidad EAFIT invites candidates to apply to multiple faculty positions in its six thrust areas. We seek to fulfill up to two vacancies per area over the 2024 academic year and into 2025. We will give the highest of priorities to candidates interested in entry Assistant Professor level tenure-track positions. Hiring dates are flexible with positions starting as early as April 2024.

We are particularly interested in candidates with expertise in one or more of the following or related areas: computational mathematics and applications, quantum physics and computing, theory and computing in biophysics and biochemistry, energy transition, sustainability and data science, urban science, transportation engineering, mechanical systems, mechatronics and internet of things, energy systems, non-parametric and robust statistics, computing and algorithms, artificial intelligence and information theory, generative design, and product innovation.

Viable candidates should hold a Ph.D. degree (by the time of appointment) in science, engineering, or design, depending on the application details provided below for each thrust area. Successful candidates will be expected to teach basic and advance science and engineering courses, mandatory core and elective trajectory courses, in undergraduate and graduate programs, as well as in continuing education programs; to establish and grow a recognized research program, and to contribute to established research groups and the strategic goals of the thrust area of affiliation; to have the ability to transfer scientific knowledge to organizations and society, and participate in consulting projects or have interest in entrepreneurship; and to help advance the overall success of the School of Applied Sciences and Engineering, and the University.

About the School and its Thrust Areas

The School of Applied Sciences and Engineering is the strongest academic division at Universidad EAFIT in terms of research and innovation, representing 75% of expenditures in R&D, and over 85% of overall knowledge transfer products and initiatives of the University. The School houses a community of about 3,900 students, and has the largest infrastructure facilities, laboratory spaces and equipment, teaching spaces and personnel, with a faculty of 120+ full-time tenured and tenure-track professors distributed in its six thrust areas, and about 250+ adjunct instructors. Academically, the school offers 12 undergraduate programs and over twenty graduate and professional programs, including seven master's and three Ph.D. programs. The School's thrust areas are:

1. Fundamental Sciences
2. Natural Systems and Sustainability
3. Territories and Cities
4. Industry, Materials and Energy
5. Computing and Analytics
6. Product and Experience Design

Each thrust area is comprised of a faculty body of about 20+ professors. These thrust areas are multidisciplinary in nature and composition. Each faculty member builds upon his or her own research interests and branches from the area of affiliation out to contribute to the academic programs of the School, which are led by Program Chairs under the coordination of the Associate Dean for Academic Programs. Overall, the school is led by the Dean's Office and the Area Directors, with the help of a supporting staff including chairs and directors of Continuing Education, the Center of Laboratories, the Center for Urban and Environmental Studies, and NODO– a center for technology learning.

It stems from this that successful candidates to the faculty openings at the School of Applied Sciences and Engineering at Universidad EAFIT are expected to exhibit an ability and potential, or a track-record of experience, in multi- and inter-disciplinary work in all academic dimensions of teaching, research, and service.

General Requirements

All candidates are expected to have earned a Ph.D. degree or an equivalent research doctorate, or to be in the process of obtaining one by the time of appointment. Priority will be given to candidates with an international degree or significant international experience. Candidates who obtained their degrees in Colombian or Latin American universities are expected to have completed doctoral or postdoctoral international internships with a six-month period of residence or longer. Candidates with an international degree must have an apostille seal on their diplomas and have them officially recognized by the Colombian Ministry of Education by the end of the first year of appointment. Successful candidates are expected to be proficient in English.

Description of Faculty Openings

We aim to hire over ten new faculty members over the next year and a half. This equates to approximately two new professors per thrust area. Below are the descriptions of the research and teaching subjects of the highest interest for each thrust area. Faculty openings are expected to be fulfilled in these subjects but are not limited to them. Priority will be given to specific subjects based on our must current needs. Opening announcements will be regularly updated over time.

1. Area of Fundamental Sciences

1.1. Computational mathematics and applications: Candidates for this position should have undergraduate and graduate backgrounds in mathematics or applied mathematics; with doctoral studies or research in but not limited to discrete mathematics, classical and non-classical logic, rewriting systems, algorithm analysis, demonstration theory, formal verification, information theory, computer science, or scientific computing.

1.2. Quantum physics and computing: Candidates for this position should have undergraduate and graduate backgrounds in physics, applied physics, mathematics, applied mathematics, mathematical engineering, chemistry, or chemical engineering; with doctoral studies or research in quantum physics or quantum computing. Experience related to applications of quantum computing will be highly regarded. Applications to medical and biological problems are also a plus.

1.3. Theory and computing in biophysics and biochemistry: Candidates for this position should have undergraduate and graduate backgrounds in physics, applied physics, mathematics, applied mathematics, mathematical engineering, chemistry, or chemical engineering; with doctoral studies in biophysics, biochemistry, mathematics, or engineering.

In general, candidates for this thrust area have been involved in projects aimed at understanding problems in the natural and physical world, with applications to computing, analytics, physics, industry, economics, finance, biology, or medicine. These positions will be closely related but not limited to our undergraduate and graduate programs in Biology, Processes Engineering, Mathematical Engineering, Software and Computing Engineering, Information Systems, and Applied Mathematics.

Given its nature and influence on basic and core courses in our academic programs, candidates for these positions are expected to have a strong commitment to teaching, and an ability to inspire students in the value of fundamental knowledge as a pillar of applied science and engineering.

2. Area of Natural Systems and Sustainability:

2.1. Sustainability and data science: Candidates for this position should have undergraduate and graduate backgrounds in science in the broad sense, natural sciences, or engineering; with doctoral studies in quantitative sustainability, ecology, environmental geology, or related fields. These applicants should have experience in research on natural and societal systems with proven use of scientific computing, mathematical modeling, statistics, bio- statistics, geo-statistics, data acquisition, or data analysis.

2.2. Energy transition: Candidates for this position should have undergraduate and graduate backgrounds in geology, geoscience, earth sciences or related engineering fields; with doctoral studies in fossil fuels, low emission gasses, geothermal energy, carbon sequestration and storage, non-renewable energy resources, greenhouse effects, and the overall problem of energy transition towards renewable and sustainable systems. Experience in use of computational tools, numerical processing, geoinformation systems and remote sensing, with potential impact on the energy generation industry and distribution systems, will bring added value to this position.

In general, candidates to this thrust area work towards solving problems related to the environmental, social, and economic sustainability of organizations. These positions will be closer but not limited to our undergraduate and graduate academic programs in Biology, Geology, Agronomical Engineering, Physics Engineering.

3. Area of Territories and Cities:

3.1. Urban science: Candidates for this position should have undergraduate or graduate backgrounds in civil engineering, construction, building engineering, architecture, urbanism, or urban design with application to urban problems, or related fields, with doctoral studies in resilient, sustainable, and intelligent cities, quantitative analysis to city, urban, and regional problems using spatial econometry, remote sensing, data science, optimization, machine learning, or artificial intelligence.

3.2. Transportation engineering: Candidates for this position should have undergraduate or graduate backgrounds in civil engineering, transportation engineering, systems engineering, industrial engineering, logistics, or related fields; with doctoral studies in primarily planning, design, construction, maintenance, and operation of transportation infrastructure, facilities, and systems. Experience in sustainable mobility, mass transportation systems, transportation modeling, offer and demand in transportation problems, transportation econometrics, optimization in transportation networks design, and innovative technologies for use in data analysis or decision-making processes, will bring added value to the position.

In general, candidates to this thrust area work in problems related to the design, infrastructure, and interconnecting systems of urban and rural areas towards a livable and sustainable future in harmony with nature. These positions will be closer but not limited to our undergraduate and graduate academic programs in Geology and Earth Sciences, Civil Engineering, Industrial Engineering, Urban Design, and other related programs in development.

4. Area of Industry, Materials and Energy:

4.1. Mechanical systems: Candidates for this position should have undergraduate or graduate backgrounds in mechanical engineering, mechatronics engineering, or related fields; with doctoral studies in mechanical, energy or industrial systems such as thermal, pneumatic, hydraulic, power and transport systems.

4.2. Mechatronics and internet of things: Candidates for this position should have undergraduate or graduate backgrounds in mechanical engineering, mechatronics engineering, physics engineering, automation and control engineering, or related fields; with doctoral studies in electronics, power electronics, digital circuits, microcontrollers, robotics, instrumentation, signals acquisition and processing, internet of things, machine learning. Skills in programming, computing and scientific computing would add value to this position.

4.3. Energy systems: Candidates for this position should have undergraduate or graduate backgrounds in mechanical engineering, electrical engineering, electronical engineering, or related fields; with doctoral studies in alternative energy systems, smart grids, energy storage, renewable energy, energy efficiency, energy communities or energy transition.

In general, candidates to this Area should work in industry problems related to modernization and adaptation to energy transition, through the sustainable use of natural resources and materials. These positions will support our undergraduate and graduate programs in Mechanical Engineering, Physics Engineering, Processes Engineering, Production Engineering, and other related programs in development.

5. Area of Computing and Analytics:

5.1. Non-parametric and robust statistics: Candidates for this position should have undergraduate or graduate backgrounds in statistics, mathematics, applied mathematics, mathematical engineering, , or

related fields; with doctoral studies in non-parametric statistics, robust statistics, statistical learning, machine learning, or data science.

5.2. Computing and algorithms: Candidates for this position should have undergraduate or graduate backgrounds in computing engineering, computer science, applied mathematics, or related fields; with doctoral studies in computing fundamentals, operating systems, computing architecture, distributed systems, algorithms analysis and design, software engineering, high-performance computing, or scientific computing.

5.3. Artificial intelligence and information theory: Candidates for this position should have undergraduate or graduate backgrounds in mathematics, applied mathematics, computer science, or related fields; with doctoral studies in information theory, machine learning, artificial intelligence, or intelligent systems.

In general, candidates to this thrust area have been involved in projects aimed at the adoption and application of computing and analytics to all areas of society, industry, and organizations. These positions will be closely related but not limited to our undergraduate and graduate programs in Mathematical Engineering, Software and Computing Engineering, Information Systems, and Applied Mathematics.

Given the influence of computing in all fields of science and engineering, candidates for these positions are expected to have a strong ability to reach across disciplines in both teaching and research, as well as the capacity to collaborate on applied science and consulting projects.

6. Area of Product and Experience Design:

6.1. Generative design: Candidates for this position should possess undergraduate or graduate degrees in design, industrial design, product design engineering, or related fields; along with doctoral studies in computer-aided design or artificial intelligence-aided design applied to tangible and intangible products, services and user experience design. Strong candidates for this position will demonstrate a track record in design principles, formal design, and the ability to teach aesthetics and innovation with applications in interdisciplinary environments.

6.2. Product innovation: Candidates for this position should hold undergraduate or graduate degrees in design, industrial design, product design engineering, or related fields, along with doctoral studies in product and services innovation, new product and services development, innovation roadmaps, user characterization and analysis, product life cycle analysis, or product marketing design. Strong candidates for this position should demonstrate experience and a deep understanding of product innovation within the contexts of industry and organizations, spanning both established and entrepreneurial sectors.

In general, candidates for this thrust area should have a strong affinity for innovation and entrepreneurship, as well as a broad understanding of user experience and design. These positions will be closely tied to but not limited to our undergraduate and graduate programs in Mechanical Engineering, Product Design Engineering, and Interactive Design. Additionally, they will have other teaching assignments with a cross-

cutting impact on all other programs in capstone and design project courses. Given the growing emphasis on project- and challenge-based learning in engineering curricula, candidates for these positions are expected to make significant contributions to the school's academic programs.

Application Instructions

Applications must consist of a single PDF file with the following ordered content:

- A one-page cover letter addressed to the thrust area Director (names provided below), indicating in the subject, the faculty opening of primary interest to the candidate.
- A two-page research statement, including a description of relevant experiences, results, and plans, highlighting the candidate's most significant contributions to the field of interest.
- A two-page teaching statement, including relevant experience and potential or desirable course assignments and planned contributions (based on the existing program listings of our programs.)
- A two-page outreach and knowledge transfer statement, including continuing education and consulting interests and plans.
- A one-page document listing the contact information of three references. Candidates should refrain from requesting directly or including letters of recommendation with their applications.
- A curriculum vitae in academic format, including education, experience, publications, service and leadership activities (if applicable), and research funding (if applicable). (Listings should be ordered with the most recent item first. Publications should include DOI or URL links to open-access or downloadable versions.)
- Academic transcripts and diplomas.

Applications will be accepted until February 16, 2024. Review of applications will begin on January 15, 2024. Reception and review of applications will continue until the positions are filled, with priority given to those received on-time as indicated.

This announcement will be updated as positions are filled.

The application file package could be written in Spanish or English and should be sent to:

escuela-caei@eafit.edu.co

with the subject:

Application to Faculty Position #.#

where the numbering should reference the faculty opening as per the descriptions given above. The PDF file enclosed to the application email should be named:

#.#-firstname-lastname.pdf

with the first name and last name of the applicant and the numbering in front in reference to the faculty opening of interest.

Contact Information and Questions
Questions about the application process should be addressed to:

Lina María González
escuela-caei@eafit.edu.co

Questions about the positions, the fields of interest and other academic aspects should be addressed to the Director of each thrust area. Their contact information is provided below.

Luis Alejandro Gómez
Fundamental Sciences
lgomez1@eafit.edu.co

Diego Fernando Villanueva
Natural Systems and Sustainability
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Jose Fernando Duque
Territories and Cities
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Maria Eugenia Puerta
Computing and Analytics
mpuerta@eafit.edu.co

Elizabeth Rendon Velez
Product and Experience Design
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Start Dates and Hiring Conditions

Expected start dates for each position are flexible, but we aim to have new faculty members join the University and the School as early as April 2024.

Hiring conditions and tenure process are described in detail in the University's faculty handbook available here. All positions are expected to be filled at the Assistant Professor entry level (Profesor Asistente 1). Exceptional candidates expecting a different level of appointment or category should contact the respective area director for alternative opportunities prior to sending an application package.

Gender and Diversity Statement

We are committed to contributing to gender equality and diversity in the scientific and engineering fields. Currently, the School has a faculty body with a 35-to-65 ratio of female-to-male professors. We encourage female candidates to apply to these positions, as it is our expressed interest to level the field of opportunities for professional development.