

Call for Application

On behalf of the German Academic Exchange Service (DAAD), Technische Universität Bergakademie Freiberg organizes an

International DAAD Alumni Seminar

GERMANY'S CONTRIBUTION TO MINING 4.0: ALGORITHMS, SOFTWARE, SENSORS, AUTOMATED MINING, BUSINESS CONCEPTS FOR DEVELOPING COUNTRIES

**April 29 - May 5, 2019
in Freiberg, Germany**

followed by a

visit to re:publica 2019, thirteenth edition, an event dedicated to the digital world and digital society

**May 6, 7 and 8, 2019
in Berlin**

The seminar and trade fair visit is offered by the German Academic Exchange Service (DAAD) in the framework of the programme Alumni Special Projects (www.daad.de/alumni-special-projects). The international DAAD Alumni Seminar is organized and hosted by the Institute for Mining and the Chair of Environment and Natural Resources Management in co-operation with other units of the University. The costs will be mainly covered by funds from the DAAD provided by the German Federal Ministry for Economic Cooperation and Development (BMZ).

The seminar targets Germany Alumni from developing countries (DAC country nationals) who studied, carried out research or worked in Germany for at **least 3 months** and are presently living and working in their home countries. The Alumni should have a proven background in **academic fields** and **practical experience** in digitalization in mining and minerals processing (MINING 4.0 and related activities: minerals handling, mining logistics, digitalization and health and safety. Either they have a **mining background** or they are professionally involved in **information technology and /or informatics** with applications to MINING 4.0. The prospective participants should be potential multipliers who can disseminate the knowledge acquired during the seminar and the event and who are influential in its implementation.

Background and Objective

Developing Countries generate around 60 percent of all mineral resources globally and many of them are Resource Dependent. ICCM (International Council on Mining and Metals - 2018) classifies a country as Resource Dependent whenever its natural resources contribute more than 20 % of export earnings or its net income from natural resources is more than 10 % of GDP.

For developed countries, such as Germany, Mining Dependent Countries, especially in the Developing World, are essential suppliers of minerals and metals for their technological and economic progress, in particular for the digitalization of industrial operations and processes known as Industry 4.0 and the Internet of Things, bringing a direct integration of networked physical devices through electronics, sensors, actuators and software with computer-based systems. Digitalization also allows for the emergence and development of the digital society and of virtual worlds, except that they depend on mineral resources, of which many are defined as critical.

Recently, digitalization in mining and minerals processing (referred to as MINING 4.0) is entering “rich” Mining Dependent Countries and Mining Dependent Countries in the Developing World alike, notably in Africa, with forecasted consequences in terms of reduced job opportunities, income effects (less miners’ incomes spent), but better cost control and higher safety at work.

The seminar will inform about research activities for MINING 4.0 of TU Bergakademie Freiberg, relevant technological developments and applications in engineering consultancy and the mining industry. It will also give opportunities for reflections about the consequences of MINING 4.0 for economic development and society in Resource Dependent Countries in the Developing World and their contribution to the digital society.

re:publica 2019

The seminar is scheduled in preparation of a visit to re:publica 2019 in Berlin. This is an annual event dedicated to developments of the digital society (<https://www.re-publica.com/en>). It is not a classical trade fair with exhibitors. It is Europe’s largest internet and digital society conference. In the 2018 twelfth edition, more than 19 500 participants from 80 countries came together.

The seminar and the re:publica 2019 event will contribute to Alumni capacity building, motivate them to critically assess the development of MINING 4.0 and facilitate networking between the participants and with scientists and interested parties in Germany.

The main Topics

The main topics of the Seminar are as follows:

- Technologies for automated mining: sensors, information technology, robots
- Algorithms and data analytics and management
- Impacts of MINING 4.0 on mining operation and mineral processing
- Research and development related to MINING 4.0: current status and future outlook
- MINING 4.0 and health and safety in mining operations and minerals processing
- MINING 4.0 in the context of developing countries

Tentative Programme in Freiberg

The seminar will include:

- Lectures by TU Bergakademie academic staff and external experts
- Short course on data analytics in mining 4.0
- Poster show with posters by participating Alumni based on own projects on MINING 4.0
- University laboratory visits
- All-day scientific excursion to the university’s underground mine
- All-day excursion to an open-cast mine
- Cultural event.

It is necessary to participate in the whole programme: seminar, re:publica 2019 visit and social programme.

Eligibility Criteria for Participation

Eligible for participation are Alumni who meet the following requirements:

- **Germany Alumni from developing countries** (DAC country nationals) who have stayed in Germany for at least three months for study or research purposes.
- **A proven background** in academic fields and **practical experience** in the digitalization of mining and minerals processing (MINING 4.0) and related activities: minerals handling, mining logistics, digitalization and health and safety. You should either have a **mining background** or be professionally involved in **information technology and /or informatics** with applications to MINING 4.0.

- To act as **potential multipliers** as disseminators of knowledge and experiences acquire in the seminar. .
- **English language proficiency** which is essential to actively participate in the seminar and discussions.
- Women are particularly encouraged to apply.

Cost Coverage

The project covers the following costs:

- International return ticket (economy) to Germany (Dresden is the closest airport) and from Berlin
- Transport from airport of arrival to Freiberg (by bus/train)
- Transport from Freiberg to re:publica 2019 in Berlin (by bus / train)
- Entrance fees for re:publica 2019
- Accommodation and living expenses during the stay in Freiberg and Berlin
- Travel health insurance and visa costs for the stay in Germany

Please note: All other costs, such as transport costs from participants' home towns to airports and travel costs for visa application in home countries have to be borne by participants.

Please bear in mind that living expenses are only covered partly during your stay in Freiberg as well as in Berlin.

Application Requirements and Procedure:

If you are interested, please send your application latest by **January 31, 2019** via email to jiangxue.liu@bwl.tu-freiberg.de and j-c.bongaerts@ioez.tu-freiberg.de

The application (in English language) must include the following documents in **one single pdf file**:

- **The application form** (please download from this website: <https://tu-freiberg.de/fakult6/umwelt-und-ressourcenmanagement/international-daad-alumni-seminar-2019-mining-40>)
- A **letter of application**, stating your motivation for participation and your special interest in the topic of MINING 4.0 in the context of developing countries
- Also stating your special interest concerning re:publica 2019: which business partners, organizations, institutions etc. would you like to meet? Check <https://re-publica.com/en>
- A **CV with a recent passport size photograph**
- A **proposal for a poster** on a topic relevant to the seminar which depicts the participant's involvement in the field of MINING 4.0 especially with reference to his/her home country
- A **short description of your present duties/ position and your personal professional goals**
- An **overview** on seminars, workshops or conferences visited in Germany after finishing your studies in Germany.

The PDF document has to be named 'Last name_First name_country' (e.g. Jan_Bongaerts_Germany).

Please note: Completeness of personal data mentioned in the online application form will affect your eligibility as a participant.

With your application, you agree that your data (name, organization, email) is given to selected company representatives and that you might appear on pictures which will be published on the DAAD website after the event.

With your application you commit yourself to participate in the whole programme (expert seminar, trade fair visit and social programme).

The programme of the visit of re:publica 2019 in Berlin (6, 7 and 8 May, 2019) in Berlin is prepared by DAAD.

All applicants will be informed about the results of the selection process by in mid-February 2019.

Travel dates:

The date of **arrival in Freiberg** will be **April 28, 2019**

The date of **departure from Berlin** will be **May 9, 2019**

For any further questions please contact the organizational team:

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DAAD

Deutscher Akademischer Austauschdienst
German Academic Exchange Service



Federal Ministry
for Economic Cooperation
and Development