



Internship: Market Microstructure and Cryptocurrency Exchanges

Reference	CYBERINSTITUTE-INT-20011
Description	<p>Since its inception, Bitcoin has brought the blockchain technology to the attention of many academics and professionals. Thanks to tokenization, which may be viewed as a modern way of securitization applied to cryptocurrencies, a new asset class is made available to many traders and investors. Such assets exhibit high returns, high volatility and a rampant growth in volume. Moreover, IEO (Initial Exchange Offerings), where tokens are offered through exchanges with the protection of the due diligence, open new avenues for research. Exchange mechanisms have dramatically changed and become more sophisticated, with organized double-auction markets, implemented as online cryptocurrency exchanges. Such a market microstructure is characterized by simple administration and low transaction fees, aspects which increase the markets' liquidity but also their risk, despite safety procedures in place.</p> <p>In such a context, it is important to understand the microstructure of cryptocurrency markets, such as double-auction markets. This is important for better understanding the link between the characteristics of the blockchain and the nature of cryptocurrencies, in particular their return/risk profile. This is also important for safer and improved implementations of cryptocurrency exchanges in order to diminish risks of extreme price fluctuations.</p> <p>Based on these aspects, this internship's objective is twofold. First, it consists in analyzing the ways of collecting and cleaning high-frequency data on cryptocurrency on the various exchanges. With the arrival of cryptocurrency exchanges with open APIs, it is now possible to capture incoming orders and reconstruct the order book, which opens new insights on the investor behavior and liquidity dynamics in cryptocurrency markets. The second objective is to produce a state of the art on the studies about the microstructure of cryptocurrency markets in order to better understand the risks and their link with the value of cryptocurrencies.</p> <p><u>Context:</u></p> <p>The Grenoble Alpes Cybersecurity Institute – in short, Cyber@Alps – is a project selected in 2017 by the Cross-Disciplinary Program (CDP) of the IDEX Univ. Grenoble Alpes and aims at undertaking ground-breaking interdisciplinary research in order to address cybersecurity and privacy protection challenges. Our main technical focus are on cost effective secure elements, security of critical infrastructures all along their life cycle, vulnerability analysis and global challenges in terms of risk analysis and validation of large systems, including practical resilience across the industry and the society. Our approach to cybersecurity is holistic, encompassing technical, legal, law-enforcement, economic, social, diplomatic, military and intelligence-related aspects with strong partnerships with the private sector and robust national and international cooperation with leading institutions in France and abroad (https://cybersecurity.univ-grenoble-alpes.fr)</p>
Prerequisites	Applicants must be enrolled in a finance Master 2 degree. In order to be able to conduct this project, the candidate needs to possess a good knowledge in finance and to be motivated to conduct research in the field of risk management and cyber risks. A good knowledge of the English language will be required. Knowledge on databases and programming may be a strength.

Tutors	Sonia Jimenez, Professor, CERAG, Grenoble INP (Ensimag)
Applications	Please send your resume, application letter with two recommendations (including education director), first year master's degree grades (mandatory) and second year grades (if possible) to cyberalps-contact@univ-grenoble-alpes.fr For more information on the internship, please contact radu.burlacu@univ-grenoble-alpes.fr
Location	CERAG Laboratory, Grenoble (France)
Starting date	February/March 2019
Duration	5 to 6 months
Allowance	In accordance with existing regulations (approx. 560€/month). Part of travel expenses can be covered.

