CESARE VILLIGER

OPEN TO WORK

PERSONAL

Mühlebachstrasse 66
8008 Zürich

+41 79 405 72 87

cesare.villiger@uzh.ch

/Cesare Villiger

c-villiger.github.io

LANGUAGES

DE German
Native

EN English
Fully Proficient

FR French
Intermediate

IT Italian
Elementary

REFERENCES

Dr. Kerstin Kehrle
kerstin.kehrle@snb.ch
Börsenstrasse 15
8001 Zürich

Prof. Dr. Alexander Wagner
alexander.wagner@bf.uzh.ch
Plattenstrasse 14
8032 Zürich

PROFILE

"Enthusiastic, motivated and ambitious. Always willing to learn new things and broaden my horizon.
I am very resilient and meticulous when it comes to problem solving and deepening what has been learnt. "

WORK EXPERIENCE

Internship

Mar. 2023 - Mar. 2024 **FX Analysis and Implementation Analysis Intern - Swiss National Bank [SNB] (100%)**

- Operational implementation of monetary policy as FX trader.
- Development of tools for ongoing monitoring and reporting of relevant financial market events and monetary policy implementation.
- Tracking, evaluating and interpreting events in the financial markets. Developing qualitative and quantitative analyses and research projects about the Swiss money market and foreign exchange markets.

University and Teaching

Sep. 2023 - Feb. 2024 **Teaching Assistant for Foundations of Data Science - Department of Informatics [UZH]**

- Managed and mentored student teams on practical tasks, while also being responsible for the preparation, grading, and correction of exams.

Sep. 2020 - Mar. 2023 **Research And Teaching Assistant - Department of Banking and Finance [UZH] (~30%)**

- Responsible Headcoach for"Corporate Finance" with over 400 students and MAS participants. This includes: hosting exercise sessions, preparing the course material, learning videos and final exam, administration and recruitment.
- Co-creation and lecturing in the courses "Climate Change Finance" and "eFundamentals of Programming".

Dez. 2017 - Apr. 2018 **Teaching Assistant - Sekundarschulhaus Neumünster, Zurich (~30%)**

- Teaching assistant for secondary school in Zurich. Reponsible for: informatics, mathematics, and languages (German, English, French).

Aug. 2016 - Sep. 2020 **Tutor - Boost the Support (~50%)**

- Tutoring students ranging from grammar school preparation to university level in mathematics, German and French.

TECHNICAL

General

MS Office
Fully Proficient

Latex
Advanced

Coding

Python
Advanced

R
Advanced

Matlab
Advanced

SQL
Experienced

Git/GitHub
Advanced

HTML
Experienced

Visualization

Tableau
Experienced

Power BI
Experienced

FURTHER KNOWLEDGE

Bloomberg/ Datastream

Data retrieval, market research and real-time market reorting.

Collaboration Software

Working experience with Jira and Confluence

Datacamp

Various courses data cleaning/ manipulation in Python/R and Python for finance and algorithmic trading.

EDUCATION

Feb. 2022 - **Master in Economics and Data Science (UZH)**
Feb. 2024

- Major in Economics and minor in Data Science at the University of Zurich (UZH) . Preliminary grade: 5.7.
- Strong focus on quantitative and empirical methods, predominantly time series analysis and deep learning. Keen interest in the intersection of data science and economics and the applications of machine learning therein.

Sep. 2022 - **Special Student: Master in Data Science (ETH)**
Feb. 2024

- 24/30 ECTS of electives courses expected to be completed at ETH, covering multivariate statistics, statistical regression and applied time series analysis.
- Achievements in course on modern statistical inference and its applications to finance honoured with highest grade and letter of recommendation by Prof. Marc Paolella (Member of Steering Committee MSc Quantitative Finance UZH/ETH).

Sep. 2018 - **Bachelor in Economics and Informatics (UZH)**
Feb. 2022

- Major in Economics and minor in Informatics at the University of Zurich (UZH). Final Grade: 5.1 (magna cum laude).
- Bachelor Thesis: Estimation of influence of railway construction on Swiss GDP using extended generalised method of moments framework.

Mar. 2017 - **International Baccalaureate Diploma Programme**
Aug. 2017

- Bilingual Diploma, fully completed in English at the Literargymnasium Zurich, with focus on mathematics and Latin.

Mar. 2017 - **Swiss Matura**
Aug. 2017

- Completed at the Literargymnasium Zurich. Focus on Latin, English and Music.

EXTRACURRICULAR ACTIVITIES

Music

- I have been playing piano for 18 years, completing all level tests at the Zurich Conservatory Music School and the Swiss Music Matura.
- My greatest hobby is performing live as a keyboarder/pianist, having played more than 100 concerts over the past years with three different bands.

Physics/Mathematics

- First place at the Swiss Young Physicist's Tournament (2015).
- ETH Zurich Math Youth Academy (advanced class).

Sports

- I used to be a competitive rower.
- I won a multitude of medals and even one Swiss Championship.

PROJECTS

All PDFs are publicly available on my portfolio webpage: https://c-villiger.github.io.

Statistical Finance

Three separate semester report focused on the modelling of different distribution used in empirical finance and the estimation of parameters therein.

- The third report applies the multi-myriad filter (MMF) algorithm, an improvement on the classical expectation maximisation (EM) algorithm, in order to find the parameters of a multivariate t distribution. The results are compared to those of the MLE and other variants of the EM algorithm in terms of accuracy and computation time.
- The second report focuses on the non-central t distribution, comparing the coverage accuracies of confidence intervals for the expected shortfall (ES) based on parametric and non-parametric bootstrap.
- The first report explores the stable Paretian distribution and sums thereof, visualising the differences between the theoretical ES and the empirical ES based on simulations.

Bachelor Thesis

Estimation of influence of railway construction on Swiss GDP using extended generalised method of moments framework.

- Absract: This paper examines the influence of railway construction on economic growth in Switzerland in the second half of the 19th century. The data refers to 191 districts of Switzerland over a period of five decades. In the estimation of a dynamic panel model, an endogeneity problem between the error terms and the lagged dependent variable arises (Nickell, 1981). This problem can be solved by a generalised method of moments estimator (GMM), which uses lags of the regressors as instruments. This paper uses a system GMM estimator according to Blundell and Bond (1998), which yields a significantly negative estimator for the aggregate effect across all districts. The disaggregated effect for the largest districts is, however, significantly positive. This suggests that certain districts have used railway construction to their advantage and were able to maintain this advantage over the entire period under consideration.

University of Zurich UZH

Cesare Villiger
Seefeldstrasse 243
8008 Zürich

Transcript of Records

Cesare Villiger
Born on 6 September 1999
Student ID No. 17-920-208

NEW: The authenticity of the original downloaded transcript of records can be verified digitally at http://verify.uzh.ch/en.

Enrollment for Spring Semester 2023

Faculty of Business, Economics and Informatics

Degree Program	Master of Arts UZH in Business and Economics (RVO22)
Major 90	Economics
Minor 30	Data Science

Academic Achievement

Module Designation	Module Title	Status	Ext.	ECTS Credits	Grade
Spring Semester 2023					
30SM_F_Pv12	Français B1-B2 : Points de vue sur l'actualité	Successful		2.0	5.5
Fall Semester 2022					
03SM22MI0005	Foundations of Data Science (L+E)	Successful		6.0	5.75
03SM22MO0010	Empirical Methods (L+E)	Successful		6.0	5.5
03SM22MO0059	Advanced Statistics (L+E)	Successful		6.0	5.0
03SM22MO0103	Statistical Foundations for Finance (Mathematical and Computational Statistics with a View Towards Finance and Risk Management)	Successful		6.0	6.0
Spring Semester 2022					
03SMMINF4568	Deep Learning (L+E)	Successful		6.0	6.0
03SMMOEC0028	Time Series Analysis (L+E)	Successful		6.0	5.25
03SMMOEC0048	International Macroeconomics (L+E)	Successful		6.0	5.75
03SMMOEC0214	Advanced Microeconomics 2 (L+E)	Successful		6.0	5.75
Fall Semester 2021					
03SMBA_OEC	Bachelorarbeit Wirtschaftswissenschaften (Bachelor's Thesis)	Successful		18.0	5.75

![University of Zurich UZH logo]

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Academic Achievement

Module Designation	Module Title	Status	Ext.	ECTS Credits	Grade
	Eisenbahnen und Wirtschaftswachstum in der Schweiz				
03SMMOEC0119	Advanced Macroeconomics (L+E)	Successful		6.0	5.75
03SMMOEC0248	Advanced Microeconomics I (L+E)	Successful		6.0	5.5
Spring Semester 2021					
03SMBOEC0215	Industrieökonomik (V+Ü) (Industrial Economics)	Successful		6.0	5.25
03SMBOEC0323	Workshop & Lecture Series in Law & Economics (S)	Successful		3.0	5.5
03SMBOEC0370	Makroökonomik II (V+Ü) (Macroeconomics II)	Successful		3.0	5.75
03SMBOEC0386	Einführung in die Geldpolitik (V + Ü) (Introduction to Monetary Policy)	Successful		6.0	5.0
03SMBOEC0410	Wirtschaftsgeschichte: Europa im 20. Jahrhundert (V) Economic History: Europe in the 20th century	Successful		3.0	5.0
03SMBOEC0424	Pioneering Economics: The Department of Economics at UZH (L)	Successful		3.0	5.0
03SMBOEC0426	Gender Economics (L)	Successful		3.0	5.5
Fall Semester 2020					
03SMAOEC0018	Mikroökonomik I (V+Ü) (Microeconomics I)	Successful		9.0	5.75
03SMBINF4242	Wirtschaftsinformatik II (V+Ü) (Business Informatics II)	Successful		6.0	5.25
03SMBOEC0004	Einführung in die empirische Wirtschaftsforschung (V+Ü) (Introductory Econometrics)	Successful		6.0	4.75
03SMBOEC0354	Mikroökonomik II (V+Ü) (Microeconomics II)	Successful		3.0	4.5
03SMBOEC0391	Arbeitsmarktökonomik (V + Ü) (Labor economics)	Successful		6.0	5.5
Spring Semester 2020					
03SMAOEC0006	Makroökonomik I (V+Ü) (Macroeconomics I)	Successful		9.0	4.0
03SMAOEC0032	Banking and Finance II (L+E)	Successful		3.0	6.0
03SMBINF4238	Wirtschaftsinformatik I (V+Ü) (Business Informatics)	Successful		3.0	4.5
03SMBOEC0015	Managerial Accounting (V)	Successful		3.0	5.0
03SMBOEC0364	Verhaltensökonomie (V) (Behavioral Economics)	Successful		3.0	5.25
03SMBOEC0382	Financial Reporting (L+E)	Successful		3.0	5.0
Fall Semester 2019					
03SMAOEC0014	Betriebswirtschaftslehre I (V + Ü) (Business Administration I)	Successful		3.0	5.75
03SMAOEC0016	Financial Accounting (L + E)	Successful		6.0	5.5
03SMAOEC0030	Banking and Finance I (L+E)	Successful		3.0	5.75
03SMBOEC0003	BWL III (V+Ü) (Business Administration III)	Successful		6.0	5.25
03SMBOEC0228	Corporate Finance (L+E)	Successful		6.0	5.25
03SMBOEC0340	Aktuelle Probleme der Schweizer Wirtschaftspolitik (V) (Current Issues in Swiss Economic Policy)	Successful		3.0	5.25

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Module Designation	Module Title	Status	Ext.	ECTS Credits	Grade
03SMBOEC0355	Einführung in das wissenschaftliche Arbeiten (Ü) (Introduction to scientific working)	Successful		3.0	Pass
Spring Semester 2019					
03SMAINF1169	Informatics II (V+Ü) (Informatik II)	Successful		6.0	4.5
03SMAINF1170	Foundations of Computing I (L+E) (Formale Grundlagen der Informatik I)	Successful		6.0	4.5
03SMAOEC0004	Betriebswirtschaftslehre II (V + Ü) (Business Administration II)	Successful		6.0	4.25
03SMAOEC0008	Mathematik II (V+Ü) (Mathematics II)	Successful		6.0	5.0
03SMAOEC0010	Statistik (V+Ü) (Statistics)	Successful		6.0	5.5
Fall Semester 2018					
03SMAINF1165	Informatik und Wirtschaft (V) (Informatics and Economics)	Successful		3.0	5.5
03SMAINF1166	Informatik I (V+Ü) (Informatics I)	Successful		6.0	4.5
03SMAINF1167	Mikroökonomik für Informatikstudierende (V+Ü) (Microeconomics for Informatics)	Successful		6.0	5.5
03SMAINF1168	Mensch und Computer (People-Oriented Computing) (L+E)	Successful		6.0	4.25
03SMAOEC0014	Betriebswirtschaftslehre I (V + Ü) (Business Administration I)	Not Successful		0.0	3.0
03SMAOEC0020	Mathematik I (V+Ü) (Mathematics I)	Successful		6.0	5.0

Total ECTS Credits Earned				**248.0**	

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Notes on Evaluation of Academic Achievement

Grades for assessments are given on a scale of 1 to 6. The highest grade is 6, the lowest 1. Grades awarded in half-grade increments are the norm; quarter-grade increments are possible. An assessment receiving a grade of 4 or higher is deemed passed. Ungraded assessments are marked on a «Pass»/«Fail» basis, «Fulfilled»/«Not Fulfilled», «Attended» or with a w (Module in Progress). ECTS credits are awarded if an assessment is marked Pass or given a grade of 4 or higher. Credits can only be awarded for an entire module; partial credit is not given.

If the status is «Successful», the module has been passed and ECTS credits have been awarded. «Not Successful» means either that the module was not passed but the assessment may be repeated, or that the module was definitively failed and no ECTS credits were awarded. Module in progress signifies that a module lasts two semesters and that only the first semester was completed at the time the Transcript of Records was issued.

Additional Notes on Evaluation of Academic Achievement:

For Academic Achievement at the Faculty of Business, Economics and Informatics, Master of Arts UZH in Business and Economics (RVO22)
No additional notes on evaluation of academic achievement.

Appeals/Right to Appeal

Newly listed entries on this Transcript of Records are subject to appeal at the responsible office of the faculty concerned. The appeal must be submitted in writing and include a petition for rectification naming the grounds for the appeal as well as a signature.

Appeals may only be made to correct violations of the law, violations of administrative regulations, or calculation and transcription errors. Objections of inappropriate evaluation are excluded. The decision on the appeal is subject to appeal at the Appeals Commission of the Universities of the Canton of Zurich.

Appeals must be submitted within 30 days of receiving the German version of the Transcript of Records to:

For Academic Achievement at the Faculty of Business, Economics and Informatics

Faculty of Business, Economics and Informatics
University of Zurich
Dean's Office
Rämistrasse 71
CH-8006 Zurich

University of Zurich^UZH

It is hereby certified that the Faculty of Business, Economics and Informatics at the University of Zurich UZH has conferred upon

Cesare Villiger

born on 6 September 1999

the degree

Bachelor of Arts UZH in Wirtschaftswissenschaften

corresponds to Bachelor of Arts UZH in Business and Economics

Major 150	Economics	— 5.2 —
Minor 30	Informatics	— 4.6 —
Weighted Overall Grade		— 5.1 —
Classification		magna cum laude

Zurich, Switzerland, 6 April 2022

Prof. Dr. Michael Schaepman
President
University of Zurich

Prof. Dr. Harald Gall
Dean of the Faculty of Business,
Economics and Informatics
University of Zurich

Department of Banking and Finance

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Prof. Dr. Marc Paolella
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UZH, Department of Banking and Finance, Plattenstrasse 14,
CH-8032 Zurich

Zurich, December 5, 2022

Letter of Recommendation

To Whom it May Concern,

I am very happy to write a letter of recommendation for Cesare Villiger.

Cesare has just finished one of my advanced master's courses in modern statistical inference, with emphasis on applications in financial econometrics. The course is rather high level, being aimed at the students enrolled in Zurich's highly competitive quant finance masters program. We begin already in the first lecture with characteristic functions and the inversion theorem, and also cover the functionality and examples using the Fast Fourier Transform, and how these are used in quantitative risk management for computing risk measures of financial portfolios. Other topics I cover include resampling algorithms (bootstrap), saddlepoint approximations (as used for example in option pricing), numerical optimization, the EM algorithm for estimating the parameters of mixture distributions (these being very common in the modeling of asset returns, and more generally in machine learning contexts), as well as more advanced univariate and multivariate distributions that are used in empirical finance such as the stable Paretian.

The workload for students is rather high, with grading based on three lengthy take home assignments requiring handing in a professional looking report written in LaTeX that entails working through the mathematical and statistical theory, and then extensive computer coding in one of the prototyping languages, e.g., R, Python, or Matlab.

Cesare received the highest possible grade in my class. His written assignments are outstanding, having amounted to nearly 100 pages of analysis. He is clearly able to write professional reports, notably those requiring the use of advanced statistical methodology. What impressed me further is that, on the last (and most challenging) assignment, for which I gave the students three weeks to work on, Cesare not only finished it in three days (!!), but also worked through the theory and developed codes to implement a recent advanced algorithm from the optimization literature for estimating a multivariate statistical model. I am going to use his codes in my own research.

So, as should be clear, this is a student with an extremely high skill set, and who also can clearly work under pressure and deliver. This guy has what it takes to be an important member of a high powered research team in quant finance. Arguably equally important, Cesare is a very pleasant, modest person with strong social skills. As such, I give him my highest recommendation, and suggest you take a candidate like this very seriously.

If you have any questions or wish to speak with me about Cesare, please contact me via email.

Sincerely,

Prof. Marc Paolella

Zwischenzeugnis

Cesare Villiger, geboren am 6. September, von Beinwil (Freiamt) AG, ist seit dem 1. September 2020 am Institut für Banking und Finance (IBF) der Universität Zürich im Umfang von 20% bis 40% als Semesterassistent tätig.

Als Mitarbeiter des IBF Teaching Center übernimmt Herr Villiger verschiedenste Aufgaben, wobei er stets mit seiner fachlichen und sozialen Kompetenz überzeugt. Seine Aufgaben umfassen insbesondere die folgenden:

- Verantwortlicher Assistent («Headcoach») für das den Weiterbildungskurs «eFundamentals of Programming» und «Climate Change Finance» mit ca. 60 Absolventen im Frühlings- und Herbstsemester 2021. Erstellung des gesamten Kursinhaltes von Skripts über Lernvideos zu Abschlussprüfungen, administrative und inhaltliche Betreuung der Absolvierenden.

- Inhaltliche, methodische und didaktische Konzeption, Aufbereitung und Qualitätskontrolle von eLearning unterstützten Vorlesungen im Fachgebiet Banking und Finance (u.a. Vorlesungsunterlagen, Multiple-Choice Fragen zur Lernkontrolle, Anwendungsübungen in Excel).

- Mithilfe bei der Rekrutierung von neuen Mitarbeitenden.

- Inhaltliche und organisatorische Betreuung von Studierenden und Weiterbildungsteilnehmenden via Online-Foren für diverse Lehrveranstaltungen. Leiten von Übungsstunden.

- Teilnahme an eLearning Workshops und permanente Weiterbildung in technischen wie auch didaktischen Bereichen.

Herr Villiger verfügt über ein ausgezeichnetes Fachwissen und eine äusserst schnelle Auffassungsgabe. Er erledigt die ihm übertragenen Aufgaben stets selbständig, gewissenhaft und zu unserer vollsten Zufriedenheit. Durch sein vorbildliches Engagement und seine Mitarbeit ist er eine konstruktive Bereicherung für unser Team. Sein Verhalten gegenüber Vorgesetzten und Mitarbeitenden ist stets hilfsbereit, korrekt und einwandfrei.

Dieses Zwischenzeugnis wird auf Wunsch von Herrn Villiger ausgestellt. Wir danken Herrn Villiger für die bisherige wertvolle und erfolgreiche Zusammenarbeit und freuen uns, ihn so lange wie möglich in unserem Team zu haben.

Zürich, 08. September 2021

Prof. Dr. Walter Farkas
Direktor Teaching Center

Johanna Braun
Geschäftsführung Teaching Center