CURRENT RESEARCH INTERESTS	☐ Machine Learning☐ Matrix/Tensor Computations☐ Low-Rank Models	 □ Spatiotemporal Data Modeling □ Missing Data Imputation □ Time Series Analysis 	Intelligent TransportationSmart CitiesHuman Mobility			
Contact Information	chenxy346@gmail.com https://xinychen.github.io (homepage) xinychen chenxy346 Google Scholar 7 735 citations (h-index: 10 & i10-index: 10)					
Biography	In Summer 2023, I will finish my PhD at University of Montreal (UdeM), with support from the IVADO PhD Excellence Scholarship and the CIRRELT PhD Excellence Scholarship. My PhD research focuses on machine learning, spatiotemporal data modeling, and intelligent transportation systems.					
Education	 Thesis: Spatiotemporal Traffic Advisor: Nicolas Saunier (f Co-advisor: Lijun Sun (asso Master's degree in Traffic In Sun Yat-Sen University Outstanding Thesis Award (top Thesis: Imputing Spatiotempo Advisor: Zhaocheng He (fu Bachelor's degree in Traffic Guangzhou University 	persity of Montreal Thip & CIRRELT PhD Excellence Sch Data Imputation and Forecasting wi ull professor at Polytechnique Mo ociate professor at McGill Universi formation Engineering & Contro 2% in total) oral Missing Traffic Data by Bayesian Ill professor) Engineering me Headway with Log-Normal and F	th Low-Rank Models ntreal) ty) 1 2016.08 - 2019.06 Guangzhou, China Tensor Factorization Models 2012.09 - 2016.06 Guangzhou, China			
Honours and Awards	 CIRRELT PhD Excellence Scholars IVADO PhD Excellence Scholars Outstanding Thesis Award (by Sometimes) National Scholarship (by Minist 	thip (\$100,000, by Institute for Data Sun Yat-Sen University)	2021.12 2020.04 2019.06 2018.11			
Refereed Journal Papers	 First-author papers 7. Xinyu Chen, Lijun Sun (2022). prediction. IEEE Transactions on https://doi.org/10.1109/TF JCR-Q1 ■ IF: 24.314 ■ ESI hot paper (top 0.1%) 6. Xinyu Chen, Mengying Lei, Ni 	Bayesian temporal factorization for Pattern Analysis and Machine Intell PAMI.2021.3066551 top-tier \$\mathbb{T}\$ 100+ citations ESI highly cited paper (top 1%) colas Saunier, Lijun Sun (2022). La raffic data imputation. IEEE Transact	or multidimensional time series digence. 44 (9): 4659-4673.			

\$ JCR-Q1 **■** IF: 9.551 **Q** top-tier **♦** ESI hot paper (top 0.1%)

https://doi.org/10.1109/TITS.2021.3113608

5. Xinyu Chen, Yixian Chen, Nicolas Saunier, Lijun Sun (2021). Scalable low-rank tensor learning for spatiotemporal traffic data imputation. *Transportation Research Part C: Emerging Technologies*. 129: 103226.

4. Xinyu Chen, Jinming Yang, Lijun Sun (2020). A nonconvex low-rank tensor completion model for spatiotemporal traffic data imputation. *Transportation Research Part C: Emerging Technologies*. 117: 102673.

```
https://doi.org/10.1016/j.trc.2020.102673

▼ JCR-Q1

■ IF: 9.022

♀ top-tier
```

3. Xinyu Chen, Zhaocheng He, Yixian Chen, Yuhuan Lu, Jiawei Wang (2019). Missing traffic data imputation and pattern discovery with a Bayesian augmented tensor factorization model. *Transportation Research Part C: Emerging Technologies*. 104: 66-77.

2. Xinyu Chen, Zhaocheng He, Lijun Sun (2019). A Bayesian tensor decomposition approach for spatiotemporal traffic data imputation. *Transportation Research Part C: Emerging Technologies*. 98: 73-84.

```
    https://doi.org/10.1016/j.trc.2018.11.003
    JCR-Q1
    IF: 9.022
    top-tier
    200+ citations
    ESI highly cited paper (top 1%)
```

1. Xinyu Chen, Zhaocheng He, Jiawei Wang (2018). Spatial-temporal traffic speed patterns discovery and incomplete data recovery via SVD-combined tensor decomposition. *Transportation Research Part C: Emerging Technologies*. 86: 59-77.

- **♦** Co-author papers
- 3. Lijun Sun, Xinyu Chen, Zhaocheng He, Luis F. Miranda-Moreno (2021). Routine pattern discovery and anomaly detection in individual travel behavior. *Networks and Spatial Economics*. 35.

```
http://dx.doi.org/10.1007/s11067-021-09542-9
```

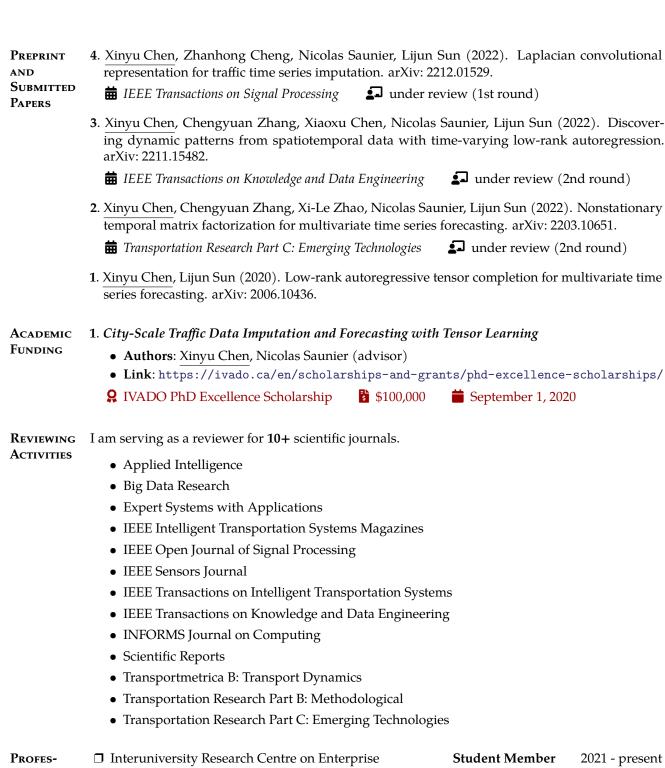
2. Pu Ren, Xinyu Chen, Lijun Sun, Hao Sun (2021). Incremental Bayesian matrix/tensor learning for structural monitoring data imputation and response forecasting. *Mechanical System and Signal Processing*. 158: 107734.

1. Zhaocheng He, Kaiying Chen, Xinyu Chen (2018). A collaborative method for route discovery using taxi drivers' experience and preferences. *IEEE Transactions on Intelligent Transportation Systems*. 19 (8): 2505-2514.

```
http://doi.org/10.1109/TITS.2017.2753468
$ JCR-Q1
IF: 9.551
Q top-tier
```

Conference TRB 2023: Xinyu Chen, Chengyuan Zhang, Lijun Sun, Nicolas Saunier (2023). Nonstationary temporal matrix factorization for sparse traffic time series forecasting. The 102nd Annual Meeting of Transportation Research Board.

KDD Time Series Workshop: Xinyu Chen, Mengying Lei, Nicolas Saunier, Lijun Sun (2021). Lowrank autoregressive tensor completion for spatiotemporal traffic data imputation. *The 7th SIGKDD Workshop on Mining and Learning from Time Series* (*MiLeTS*).



Profes- sional	☐ Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT)	Student Member	2021 - present			
Member- ships	☐ Institute of Electrical and Electronics Engineers (IEEE)	Student Member	2022 - present			
Open- Source Projects	I am leading some innovative projects on GitHub (3.2k+ stars & 600+ forks & 450+ followers).					
	◆ Selected repositories					
	transdim : Python codes for spatiotemporal data imput prediction using a variety of state-of-the-art machine le learning models.	2018.09 - present				
	🕠 xinychen/transdim 💢 950+ stars					

	awesome-LaTeX-drawing: Drawing Bayesian networks, graphical mod tensor structures, and technical frameworks in LaTeX. (Most examples from our research papers.)			19.06 - present			
		xinychen/awesome-latex-drawing					
	(7)	LaTeX-cookbook : Academic writing with LaTeX: A tutorial (i	n Chinese). 20	21.05 - present			
		🕥 xinychen/latex-cookbook 💢 700+ stars					
	9	awesome-beamer : Creating presentation slides by using Beam (Most examples are from our research.)	ner in LaTeX. 20	20.11 - present			
		🗘 xinychen/awesome-beamer 🕏 60+ stars					
	9	tracebase : Multivariate time series forecasting on high-dimer sparse Uber movement speed data.	nsional and 20	20.11 - present			
		xinychen/tracebase 🗘 30+ stars					
Presenta-		Low-rank matrix and tensor methods for spatiotemporal traff	fic data modeling	g. 2023.05			
tion & Talk	Southern University of Science and Technology						
		• Slides: https://xinychen.github.io/slides/traffic_data_modeling_v1.pdf					
		Low-rank matrix and tensor methods for spatiotemporal dat	a modeling.	2023.04			
		Sichuan University Liniversity of Electronic Science and Technology of China					
University of Electronic Science and Technology of ChinaSlides: https://xinychen.github.io/slides/stdata_modeling.pdf							
		☐ Low-rank matrix and tensor factorization for speed field reconstruction. 2023.03					
	Research Group of Transport, Polytechnique Montreal						
	•	• Slides: https://xinychen.github.io/slides/MF_TF_SFR.pdf					
		☐ Spatiotemporal traffic data imputation and forecasting with tensor learning. 2022.05					
		• IVADO Project Workshop • Slides https://winyahop.github.io/glides/phd.project_22gumman.ndf					
	• Slides: https://xinychen.github.io/slides/phd_project_22summer.pdf						
	☐ Nonstationary temporal matrix factorization for multivariate time series forecasting. 202			sting. 2022.05			
		Hong Kong Machine Learning Meetup (virtual)Slides: https://xinychen.github.io/slides/notmf.pdf					
	$\hfill\square$ Bayesian temporal factorization for multidimensional time series prediction.			2021.03			
	 IFT 6760A Course (Matrix and tensor factorization techniques for machine learning) Slides: https://doi.org/10.5281/zenodo.4693404 						
BLOG POSTS	G Posts I enjoy writing some blog posts about my research (30+ posts & 70k+ views & 300+ followers of Medium). M https://medium.com/@xinyu.chen						
	♦ S	elected posts					
	5.	Temporal matrix factorization for multivariate time series forecasting.	5k+ views	2022.03.20			
	4.	Reduced-rank vector autoregressive model for high-dimensional time series forecasting.	4k+ views	2021.10.16			
	3.	Dynamic mode decomposition for multivariate time series forecasting.	16k+ views	2021.10.10			
	2.	Matrix autoregressive model for multidimensional time series forecasting.	8k+ views	2021.10.03			
	1.	Intuitive understanding of randomized singular value decomposition.	9k+ views	2020.07.01			

☐ **Expertise**: Python/Matlab/Julia/R/Java; NumPy/PyTorch/Cupy; Jupyter Notebook; LaTeX; CSS/HTML.

References Please reach out to request a reference letter.

Prof. Nicolas Saunier (advisor)

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- Département des génies civil, géologique et des mines (CGM)
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Prof. Lijun Sun (co-advisor)

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Prof. Xi-Le Zhao (collaborator)

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- University of Electronic Science and Technology of China
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- Email: xlzhao122003@163.com