



**Fraunhofer**  
IDMT

ITN Training Week, Software Carpentry  
and Spring School  
March 30 - April 8, 2016, Ilmenau, Germany



**Briefing Pack**

**MacSeNet**  
Machine Sensing Training Network

**SpaRTaN**

Sparse Representations and Compressed  
Sensing Training Network



## Index

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General Information.....	4
Map.....	5
More Information .....	6
Timetable .....	8
Leisure Time Facilities .....	13

## General Information

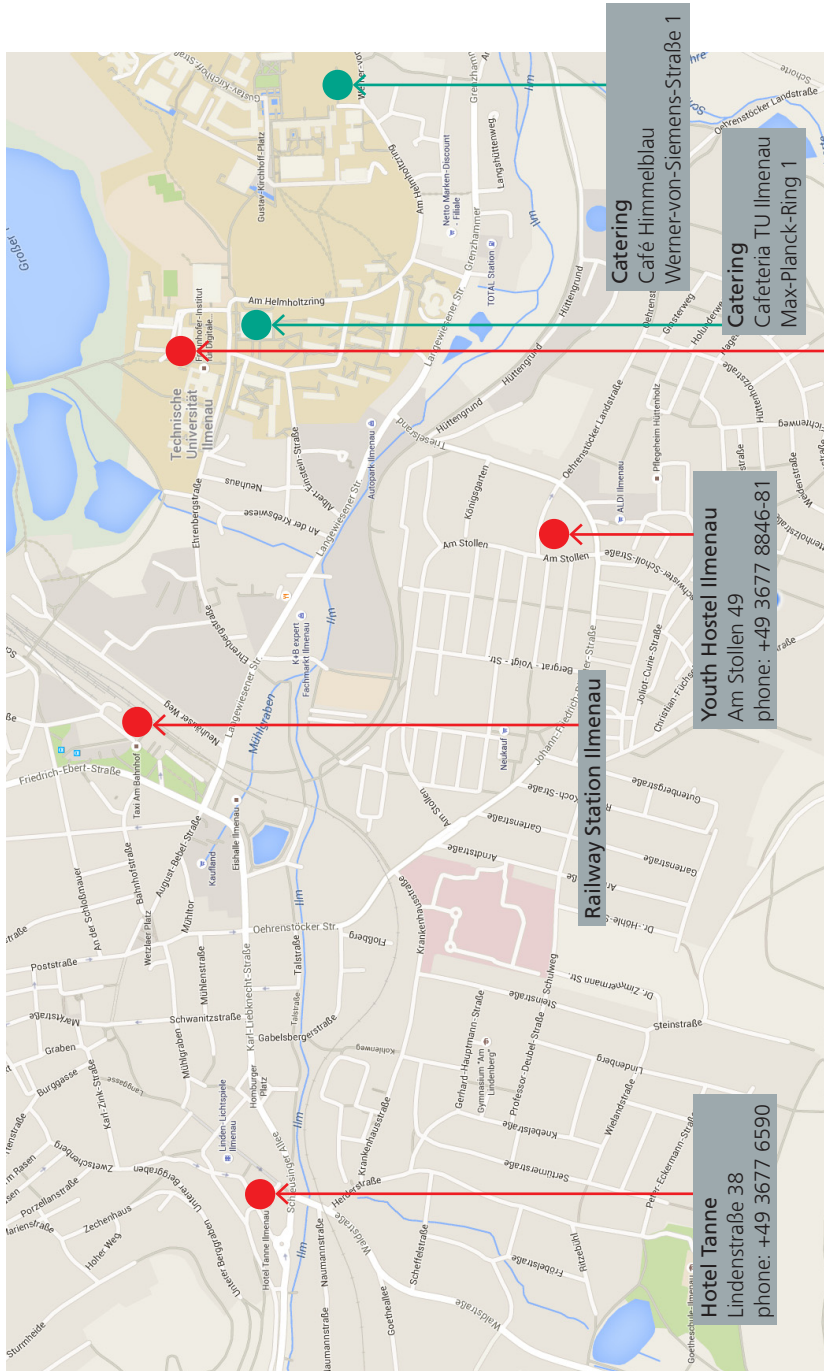
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<b>Timescale</b>	<b>ITN Training Week:</b> March 30 - April 1, 2016 <b>Software Carpentry:</b> April 4 - April 5, 2016 <b>Spring School:</b> April 6 - April 8, 2016
<b>Name Badges</b>	All participants get a badge on arrival.
<b>Address Venue</b>	Fraunhofer IDMT Ehrenbergstraße 31 98693 Ilmenau, Germany Phone: +49 3677 467-0 E-Mail: info@idmt.fraunhofer.de
<b>Accommodation</b>	Hotel Tanne Lindenstraße 38 98693 Ilmenau, Germany phone: +49 3677 6590 fax: +49 3677 659503 info@hotel-tanne-thuringen.de  Youth Hostel Ilmenau Am Stollen 49 98693 Ilmenau, Germany phone: +49 3677 8846-81 fax: +49 3677 8846-82 ilmenau@jugendherberge.de  <b>Please notice: the Youth Hostel closes at 11.00 pm! External attendees have to pay their stay in cash!</b>
<b>Catering</b>	Breakfast: Hotel Tanne/ Youth Hostel Lunch: Cafeteria of TU Ilmenau Dinner: Café Himmelblau/Cafeteria of TU Ilmenau Social Dinner on April 7th: Hotel Tanne
<b>Contact Person</b>	Helen Cooper (University of Surrey) Phone: +44 7989 410389  Hanna Lukashevich (Fraunhofer IDMT) Phone: +49 170 7904394

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The SpaRTaN-MacSeNet Spring School on Sparse Representations and Compressed Sensing is held thanks to funding received from the European Union's Seventh Framework Programme (FP7-PEOPLE-2013-ITN) under grant agreement n° 607290 SpaRTaN and H2020 Framework Programme (H2020-MSCA-ITN-2014) under grant agreement n° 642685 MacSeNet.

# Map



## More information

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### Directions

You can fly to Frankfurt/Main Airport (FRA) and take the train to Erfurt or rent a car at the airport.

#### **Arriving by public transport:**

Every hour you can go by train or bus from Erfurt to Ilmenau. The ride takes about 60 minutes. You can drive from the airport Erfurt with a rental car or taxi on the freeway A71 to Ilmenau. The ride takes approximately 35 minutes.

#### **From railway station in Ilmenau:**

Walk five minutes towards Rudolstadt/Königsee (through the Langewiesener Straße). Then turn left into the Ehrenbergstraße and walk towards the campus of the TU Ilmenau. After about 500 meters you will arrive at the institute's building of Fraunhofer IDMT which is on the left hand side next to the Ernst-Abbe-Zentrum (EAZ). A taxi ride takes about 5 minutes.

### Useful information

#### **Climate**

The average daily temperature in March/April might range from 4 °C to 15 °C and rain is a possibility. We recommend that you bring warm clothes and weather-resistant shoes as well as having an umbrella or rain gear to hand.

#### **Hospital**

Ilm-Kreis Kliniken Arnstadt-Ilmenau  
Poliklinik  
Oehrenstöcker Str. 32  
98693 Ilmenau, Germany  
Phone: +49 3677 6060

#### **Pharmacy**

Neue Apotheke (close to Hotel Tanne)  
Lindenstraße 16  
98693 Ilmenau, Germany  
Phone: +49 3677 202296

Lindenberg- Apotheke Ilmenau (close to Youth hostel)  
Krankenhausstr. 26  
98693 Ilmenau, Germany  
Phone: +49 3677 888888

## More information

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### Cashpoint

close to Hotel Tanne:  
Deutsche Bank   
Marktstraße1-3  
98693 Ilmenau, GERMANY

close to Fraunhofer IDMT/Youth Hostel  
Sparkasse Arnstadt Ilmenau   
Stollen 2  
98693 Ilmenau, Germany

### Taxi

Taxi Ilmenau 6 x 6  
Bahndamm 10  
98693 Ilmenau  
Phone: +493677 666666

## Timetable

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### **ITN Training Week, March 30 - April 1, 2016:**

Here we cover some of the basics for working on your PhD, we'll work on:

- The challenges of doing a PhD in a new Culture
- How to be an effective researcher
- Approaching your literature Review
- Project Planning
- Ethics
- Your Personal Development Plans (so if you've not started them then now's a good time)
- Poster Presentation Skills (should be good practice for the summer school)

### **Software Carpentry, April 4 - April 5, 2016:**

Software Carpentry's mission is to help scientists and engineers get more research done in less time and with less pain by teaching them basic lab skills for scientific computing. This hands-on workshop will cover basic concepts and tools, including program design, version control, data management, and task automation. Participants will be encouraged to help one another and to apply what they have learnt to their own research problems. For more information see the course webpage <http://mkuzak.github.io/2016-04-04-ilmenau/>

### **SpaRTaN-MacSeNet Spring School on Sparse Representations and Compressed Sensing, April 6 - April 8, 2016:**

Lectures and tutorials covering the theory of sparse representations, compressed sensing and related topics, and applications of these methods in areas such as image processing, audio signal processing, and signal processing on graphs.

The poster session is there to give delegates a chance to discuss their own work with their peers and the speakers. Please bring your posters in size 70x100 cm in portrait.



## Timetable

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### Mon 4th April

09:00	Welcome, Introduction and Setup
09:30	Automating tasks with the Unix shell
12:00	Lunch break
13:00	Python part I
16:00	Wrap-up

### Tue 5th April

09:00	Automation with make
10:30	Coffee
10:45	Python part II
12:00	Lunch break
13:00	Version control with Git
14:30	Coffee
15:00	Python example
16:00	Wrap-up

## Timetable

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### Weds 6th April

09:00	Gerald Schuller (Fraunhofer IDMT)	Neural Networks and Sparse Coding from the Signal Processing Perspective
11:00	Break	Foyer of Fraunhofer IDMT
11:30	Francis Bach (INRIA)	Large-scale Optimization
12:30	Francis Bach (INRIA)	Probabilistic Modelling
13:30	Lunch	Cafeteria of TU Ilmenau
14:30	Mike Davies (University of Edinburgh)	Compressed Sensing Theory
15:30	Mike Davies (University of Edinburgh)	Compressed Sensing Theory Extensions
16:30	Break	Foyer of Fraunhofer IDMT
17:00	Sacha Krstlovic (Audio Analytic)	Audio Event Detection in an Industrial Environment
18:15	Dinner	Cafeteria of TU Ilmenau

## Timetable

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### Thurs 7th April

09:00	Jakob Abesser (Fraunhofer IDMT)	Instrument Centered Parameter Estimation and Sound Synthesis
10:00	Wenwu Wang (University of Surrey)	Sparse Representation and Dictionary Learning for Source Separation, Localisation and Tracking
11:00	Break	Foyer of Fraunhofer IDMT
11:30	Ian Marshall (University of Edinburgh)	Compressed sensing in MRI
12:30	Giovanni Del Galdo (TU Ilmenau)	Compressed Sensing Theory: Geometric Interpretations
13:30	Lunch	Cafeteria of TU Ilmenau
14:30	Poster Session	Foyer of Fraunhofer IDMT
16:30	Prof. Dr.-Ing. Karlheinz Brandenburg (Fraunhofer IDMT)	Keynote
18:00	Dinner	Hotel Tanne

## Timetable

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### Fri 8th April

09:00	Mario Figueiredo (Instituto de Telecomunicações)	Convex Optimization in Inverse Problems and Machine Learning
11:00	Break	Foyer of Fraunhofer IDMT
11:30	Karen Egiazarian (Noiseless Imaging)	Image Denoising and Enhancement
13:30	Lunch	Cafeteria of TU Ilmenau
14:30	Pierre Vandergheynst (EPFL)	Graph Signal Processing
17:00	End	

## Leisure Time Facilities

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On Saturday, April 2nd, everybody has a day off from Spring School and can experience Ilmenau and the surrounding areas or make a trip to Erfurt, the capital of Thuringia.

### **ILMENAU – THE TOWN OF GOETHE AND UNIVERSITY**

„Charming valley, you evergreen grove“ is how, in 1783, Goethe poetically described

the situation of the little town at the foot of the mountains.

The town now has a population of around 30,000. It is located at a height of 500 m in

the valley of the Ilm, which runs through the town, and is surrounded by mountains and gentle hills.

#### **Sightseeings (see the information sheet):**

- ...walk in Goethe's footsteps
- Goethe memorial
- Kickelhahn tower
- Gabelbach hunting lodge
- St . Jacobus

### **ERFURT – RENDEZVOUS IN THE HEART OF GERMANY**

Erfurt is the city in the green heart of Germany. The bishopric of Erfurt was founded in 742 by Saint Boniface. In the middle ages the city, at the crossing point of long-established trade routes, grew into a powerful trade centre and university city. The dye woad, in demand everywhere, brought prosperity and power to the city and its citizens.

#### **How to get there:**

There is a train from Ilmenau to Erfurt every hour. You can find the timetable information [here](#). The train takes about one hour to Erfurt and a return ticket costs about 25 €.

#### **Sightseeings (see the information sheet):**

- Merchants' Bridge (Krämerbrücke)
- St Mary's cathedral
- Augustinian Monastery
- Town hall on Fischmarkt (Fish Market)
- Petersberg citadel - baroque town fortress

### **Social Event on April 3rd »Thuringian Walking Tour and Dinner«**

On Sunday, April 3rd, a social event is planned. We'll take a train to Rennsteig, a small village nearby Ilmenau. After a nice walk through the famous Thuringian Forest (approx. 1 h) we'll arrive at Frauenwald where we'll stop for a bite to enjoy typical Thuringian food in a nice steak house.

**Meeting point at railway station Ilmenau at 15:15 pm. Departure at 15:40 pm.**