```python
31  # Class Definitions
32
33  class LinearRegressionFitting:
34      def __init__(self, PandaDataFrame):
35          self.input = PandaDataFrame
36          self.x = PandaDataFrame.to_numpy()[:, 0]
37          self.y = PandaDataFrame.to_numpy()[:, 1]
38
39          # numpy.org/doc/stable/reference/generated/numpy.polyfit.html
40          [self.slope, self.intercept], self.residuals, *self.diagnostics = np.polyfit(self.x, self.y, 1, f
41
42          # model = expression of polynom from polyfit, here basicly
43          # y = model(x) <=> same as writing  y = slope * x + intercept
44          self.model = np.poly1d([self.slope, self.intercept])
45
46          # Bestimmtheitsmaß / Coefficient of determination / R²
47          #  1 - ( residual sum of squares / SUM( (yi - y_mean)² ) )
48          self.R2 = 1 - (self.residuals[0] /
49                         np.sum( pow( self.y - np.average( self.y ), 2) )
50                         )
51
52          self.df = pd.DataFrame({'x': self.x,'f(x)': self.model(self.x)})
53          self.chart = alt.Chart(self.df).mark_line().encode(x="x", y='f(x)')
```

Compound Semiconductor Technology

RWTH AACHEN UNIVERSITY

Student Assistant (m/f/d)
Programming of Python Scripts for Electrical Measurement Setups

At CST, we are investigating the technology of compound semiconductors for high-performance electrical devices. For characterization, we are currently using LabVIEW scripts controlling our measurement setups. This e. g. includes scripts to acquire automated input, transfer and output characteristics of transistors on a commercial semiconductor parameter analyzer. For easier customization and maintainability, we want to migrate to python-based scripts and tools.

We are looking for a motivated and creative student assistant (HiWi) with at least 8 work hours per week.

Your tasks
- Migrating the existing LabVIEW scripts to Python
- Improving usability and quality of data acquisition
- That includes
  - Finding, testing and presenting suitable Python modules for implementation
  - Programming new scripts/tools
  - Documenting the scripts and the code

Your profile
- You have experience in Python
- You are studying Computer Science, Electrical Engineering, Computer Engineering, Information Technology, Physics or Material Science
- Good language skills in German and/or English

What we offer
- Insight in state-of-the-art technology
- Practical experience in controlling characterization tools in a cleanroom
- Direct feed-back from colleagues using your code
- Joining a highly motivated and friendly team

Please approach us directly or send a short informative application via email.

Thinking the Future
Zukunft denken

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