# IN5400 Exam

June 3, 2021

#### Exercise 1

1a

Answer here!

1b

Answer here!

#### Exercise 2

2a

Answer here!

2b

Answer here!

## Exercise Example

Citations: [1] [2]

$$z = aw$$
 (1)

	D var 2086
	few questions about code
	- reading, inderestabiling, little bit producing, below level of mode, som calculation questions
	- look into the exercises!
	- not the heaviest - can calculate with code, SHOW intermediate results!
0 \$	conceptual states types, not applications
	- linear, convolutional, GAN, aptimizers, explainability, adversarial, more not too involved math
	- concrete, less essays
	- what are advolutoges/disadvantase/alternatives
	GAN second lecture, loss of non-exam stuff

Figure 1: Caption text.

```
def loss(model, x, t):
    with tf.GradientTape() as tape_x2:
        tape_x2.watch([x])
    with tf.GradientTape() as tape_x, tf.GradientTape() as tape_t:
        tape_x.watch([x])
        tape_t.watch([t])
        g_trial = (1 - t) * sin(pi * x) + x * (1 - x) * t * N(x,t])

dg_dx = tape_x.gradient(g_trial, x)
    dg_dt = tape_t.gradient(g_trial, t)

dg_d2x = tape_x2.gradient(dg_dx, x)

return tf.losses.mean_squared_error(zeros, dg_d2x - dg_dt)
```

### References

[1] S. Zanoli et al. "Harmonic Potential Theorem: Extension to Spin-, Velocity-, and Density-Dependent Interactions". In: *Physical Review Letters* 123.11

- (Sept. 2019). ISSN: 1079-7114. DOI: 10.1103/physrevlett.123.112501. URL: http://dx.doi.org/10.1103/PhysRevLett.123.112501.
- [2] C. David Sherrill. An Introduction to Hartree Fock Molecular Orbital Theory, (http://vergil.chemistry.gatech.edu/courses/chem6485/pdf/hf-intro.pdf (accessed 01.06.2021)). 2000.