

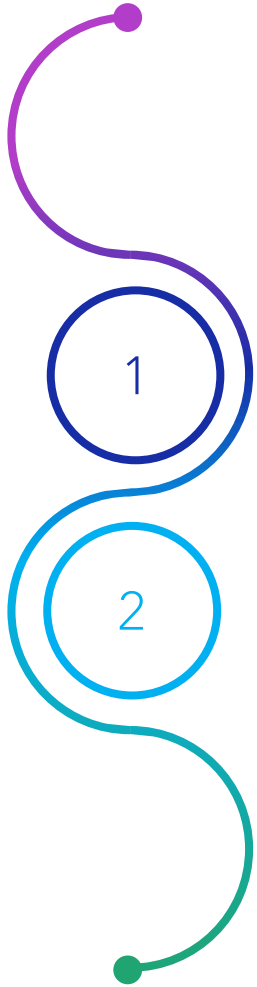


VOORTGANG FOOD PROJECT

HUMAN MACHINE TEACHERS

JESSE, JOANNE, ERIC,
MARTTI, SEFA & AYRTON

INHOUD



User Profile Generator

New User Prediction

User Profile Generator

A decorative wavy line in the top-left corner, transitioning from green to blue to purple.

1

Matrix Vermenigvuldiging

Singular Value Decomposition

User Profile Generator (Matrix Vermenigvuldiging)

1

	Matrix C			
1	1.6	0.405	1.891	
2	-0.59	0.469	0.462	
3	-1.62	0.19	0.189	
4	0.034	0.743	1.515	
5	0.338	-0.79	0.995	
	Rank 3			

	Matrix V		
Andijviestamppot met gebakken salami	-0.72	-0.57	0.521
Libanese wraps met appel-koolsalade	1.674	-0.45	2.557
Plaattaart met gegrilde groenten en witte kaas	-1.16	-0.28	0.1
Zalmspies met sojaglaize van de BBQ	0.877	-0.21	-0.19
&Suus' buik-weg-salade	0.899	0.677	0.743
	Rank 3		

3 features per
recept en profile

Waarden gekozen uit
"Standard Normal" Distribution

Matrix M				
-1.91	-0.3	-1.46	-1.81	-2.4
-1.95	0.374	3.973	-4.94	-2.67
1.526	0.282	-0.2	3.14	1.804
-0.07	0.175	3.053	-2.04	-0.04
-1.39	-0.65	-3.65	0.025	-1.54

$$\text{Matrix } M = C V'$$

$$2 \times 3 + 0 \times 4 = 6$$

$$\begin{bmatrix} 2 & 0 \\ 1 & 9 \end{bmatrix} \times \begin{bmatrix} 3 & 9 \\ 4 & 7 \end{bmatrix} = \begin{bmatrix} 6 & 18 \\ 39 & 72 \end{bmatrix}$$

Het kan zijn dat de waarden in dit voorbeeld niet kloppen.

User Profile Generator (Dropping Values)

1

Matrix M				
-1.91	-0.3	-1.46	-1.81	-2.4
-1.95	0.374	3.973	-4.94	-2.67
1.526	0.282	-0.2	2.314	1.804
-0.07	0.175	3.053	-2.04	-0.04
-1.39	-0.65	-3.65	0.025	-1.54

→ Drop 70% of values →

Andijviestampot met gebakken salami	Libanese wraps met appel-koolsalade	Plaattaart met gegrilde groenten en witte kaas	Zalmspies met sojaglaze van de BBQ	&Suus' buik-weg-salade
-1.91	NaN	-1.46	NaN	-2.4
-1.95	NaN	NaN	-4.94	NaN
NaN	0.282	NaN	2.314	NaN
-0.07	NaN	3.053	NaN	-0.04
NaN	-0.65	NaN	0.025	-1.54

Het kan zijn dat de waarden in dit voorbeeld niet kloppen.

New User Predictor

1

		Item			
		W	X	Y	Z
User	A		4.5	2.0	
	B	4.0		3.5	
	C		5.0		2.0
	D		3.5	4.0	1.0

Rating Matrix

=

	A	1.2	0.8
	B	1.4	0.9
	C	1.5	1.0
	D	1.2	0.8

User
Matrix

X

		W	X	Y	Z
		W	X	Y	Z
	A	1.5	1.2	1.0	0.8
	B	1.7	0.6	1.1	0.4

Waarden gekozen uit
"Standard Normal" Distribution

Item
Matrix

New User Predictor (SVD)

1

The diagram illustrates the SVD decomposition of matrix M into three components: C , D , and V^T .

- Matrix M ($n \times m$):** Represented as a grid of black dots.
- Matrix C ($n \times k$):** Labeled "columns are orthonormal". It contains black dots in the first and third columns, and pink dots in the second column.
- Matrix D ($k \times k$):** Labeled "diagonal matrix". It contains a single blue dot on the diagonal.
- Matrix V^T ($k \times m$):** Labeled "rows are orthonormal". It contains black dots in the first and third rows, and green dots in the second row.

The decomposition is shown as $M = C D V^T$. Below the matrices, the labels M , C , D , and V^T are written, along with their dimensions: $n \times m$, $n \times k$, $k \times k$, and $k \times m$ respectively. A bracket groups C and D under the label C .

$$\text{Matrix } M = C V'$$

2

New User Predictor (Multivariate Linear Regression)

Wat is MLR?

Waarom MLR hier?

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$$

Y : Dependent variable

β_0 : Intercept

β_i : Slope for X_i

X = Independent variable

$$2 \times 3 + 0 \times 4 = 6$$

$$\begin{bmatrix} 2 & 0 \\ 1 & 9 \end{bmatrix} \times \begin{bmatrix} 3 & 9 \\ 4 & 7 \end{bmatrix} = \begin{bmatrix} 6 & 18 \\ 39 & 72 \end{bmatrix}$$

New User Predictor (Multivariate Linear Regression)

A decorative wavy line in shades of blue and green, starting from the top left and curving downwards and to the right.

2

$X = V$ van de recepten
 $y =$ Geobserveerde X

Vragen?