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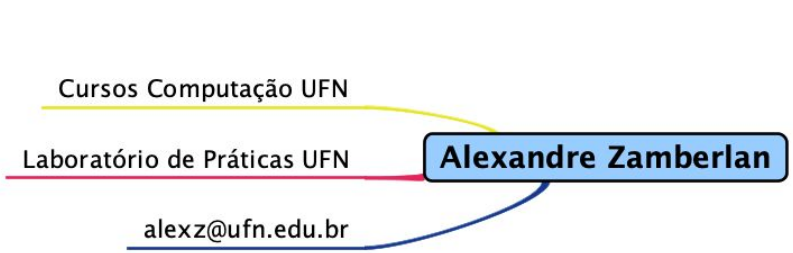

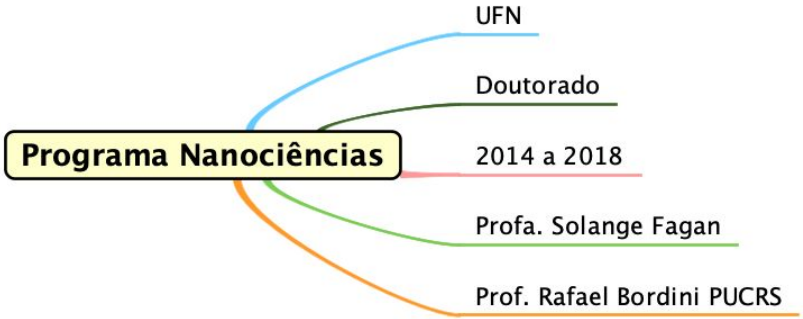

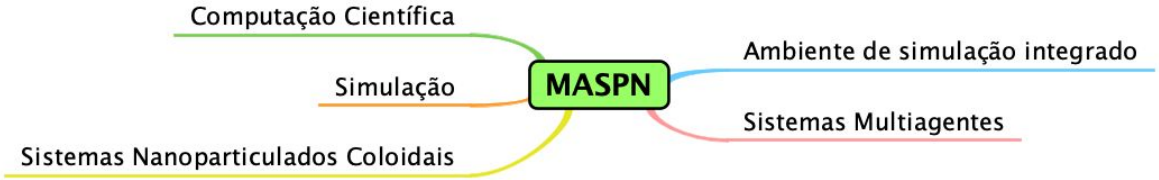

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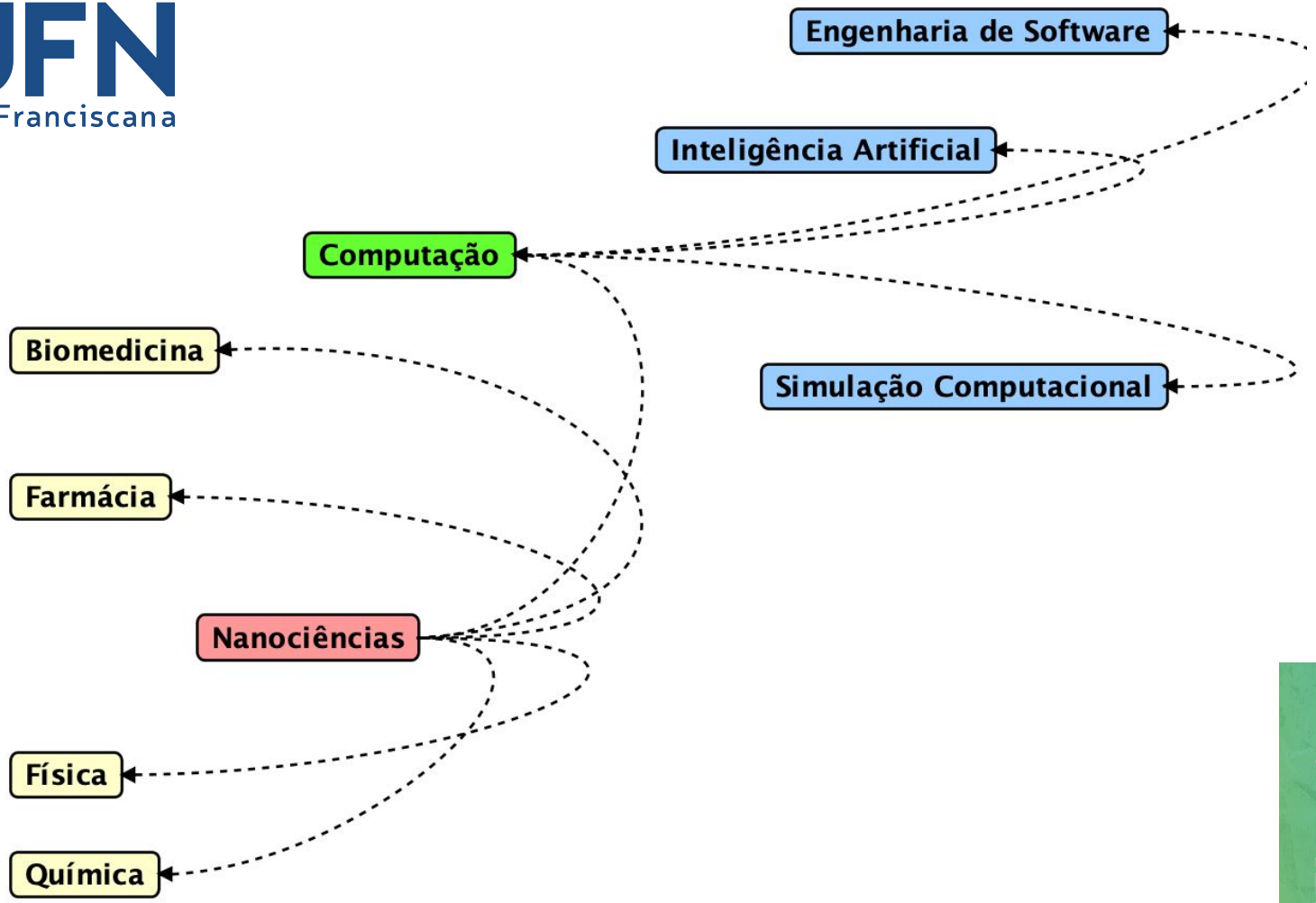

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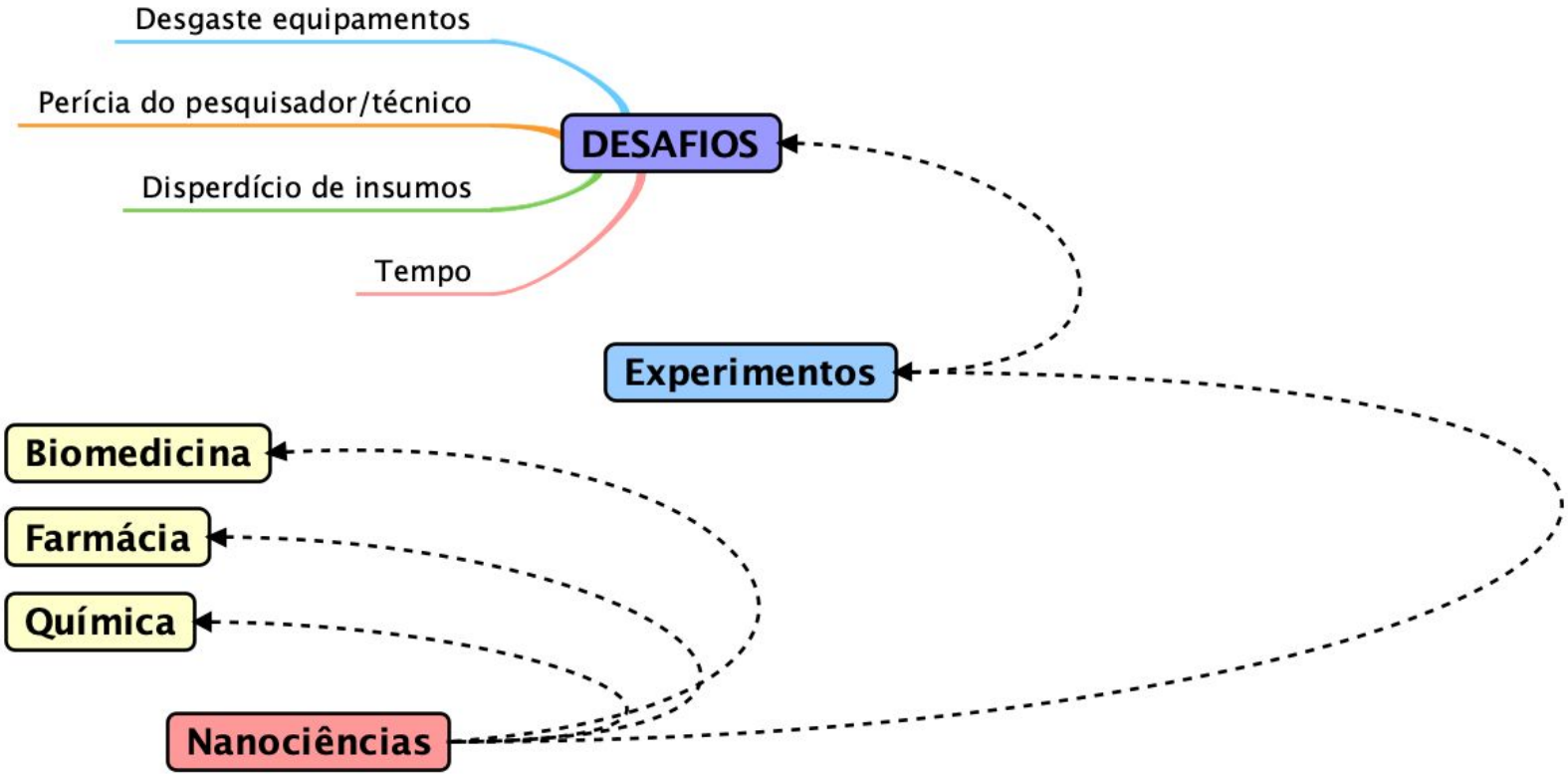

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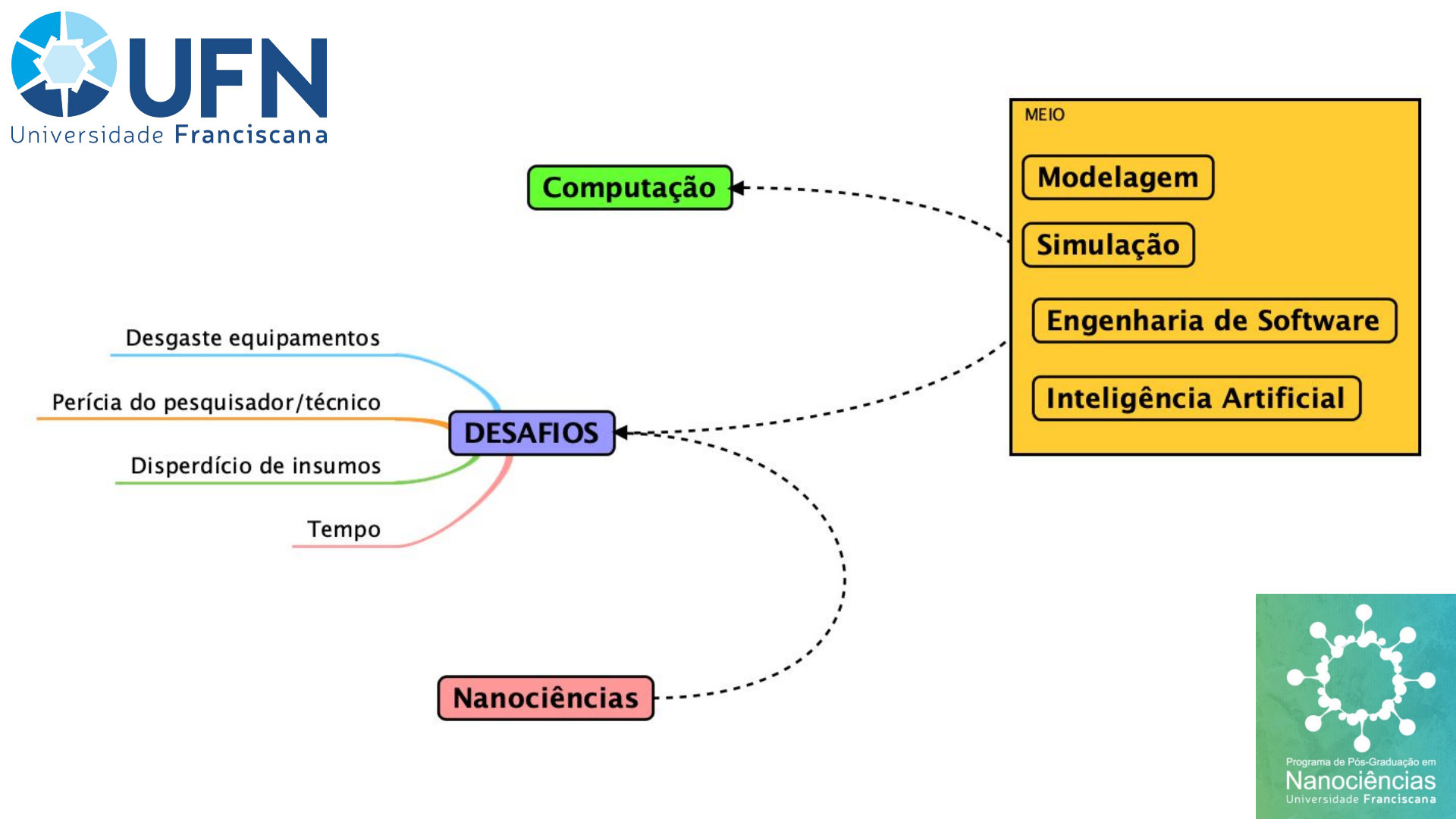
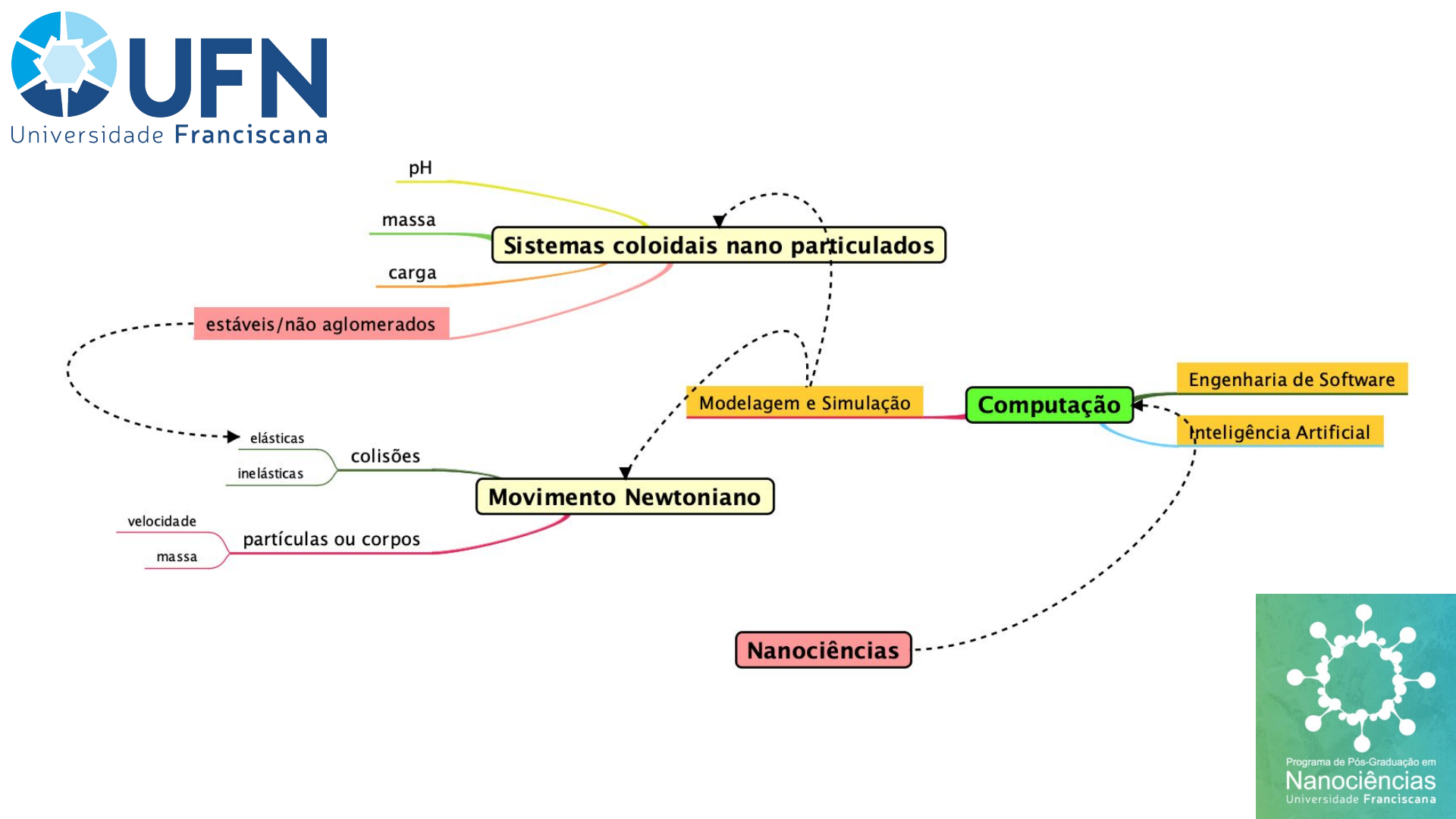

Computação
MEIO
Modelagem
Simulação
Engenharia de Software
Inteligência Artificial
Desgaste equipamentos
Perícia do pesquisador/técnico
DESAFIOS
Disperdício de insumos
Tempo
Nanociências


pH
massa
carga
Sistemas coloidais nano particulados
estáveis/não aglomerados
elásticas
inelásticas
colisões
Movimento Newtoniano
velocidade
massa
partículas ou corpos
Modelagem e Simulação
Computação
Engenharia de Software
Inteligência Artificial
Nanociências

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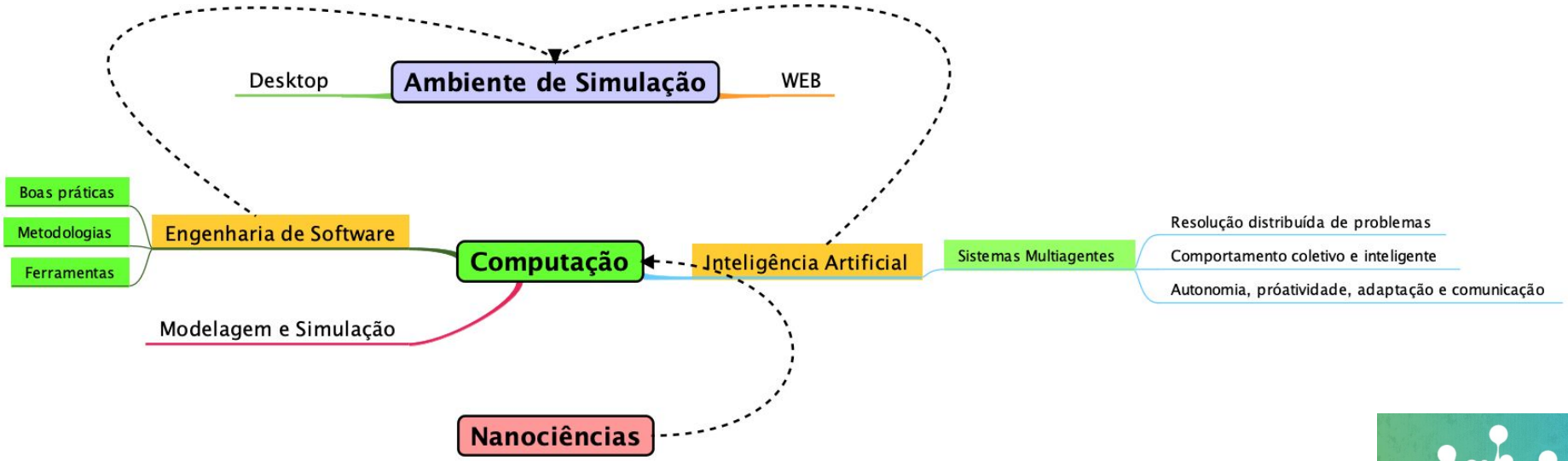

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Parameters

Amount of particles	600		
Maximum size (nm)	300		
Minimum size (nm)	60		
Polymer	Eudragit RS 100		
Drug	Dihidromiricetina		
Size distribution (nm)	161	SD	2.5
Drug content (mg/mL)	1		
Zeta potencial (mV)	11.4	SD	0.6
pH	5.6	SD	0.04
Behaviour	Stable		

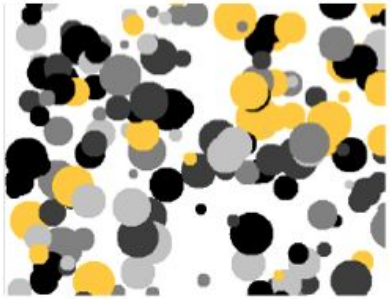
Simulation

validation

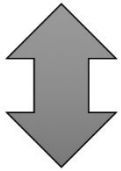
database

mathematical models

analytical models



Results



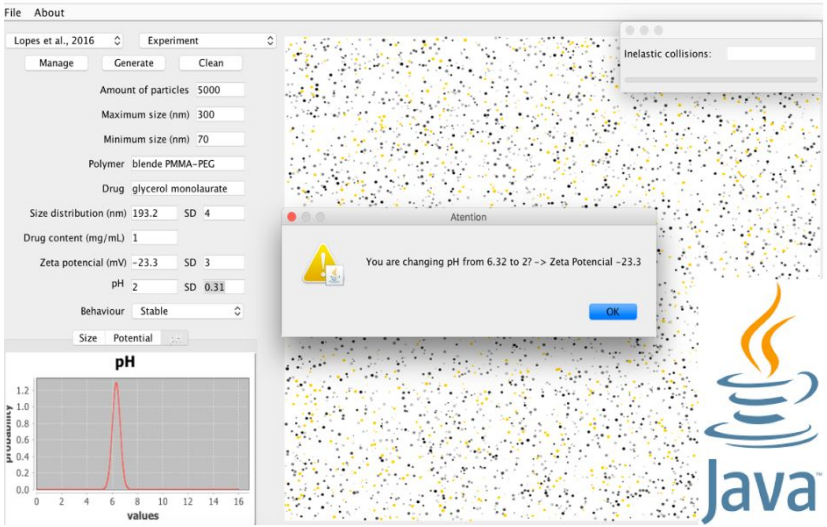
Home | Users | Institutions | Drug | Polymer | Experiment | Download | About | Logi

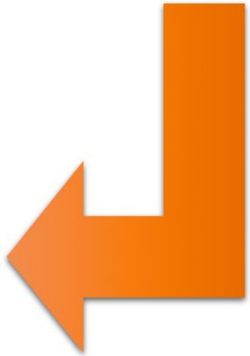
Experiment

Create experiment

Researcher	Polymer	Drug	Drug Content (mg/mL)	Size Distribution (nm)	Size Distribution SD (%)	Zeta Potencial (mV)	Zeta Potential SD (%)	pH	pH SD (%)	Result	Edit	Delete
anajulia@unifra.br	EUDRAGIT RS 100	DMY	1.0	145.0	0.5	12.0	3.0	3.8	0.5	STABLE		
alexz@unifra.br	EUDRAGIT RS 100	DMY	1.3	123.8	0.5	-30.1	3.0	None	None	STABLE		
solange@unifra.br	EUDRAGIT RS 100	DMY	1.0	111.98	2.0	-12.0	2.0	6.0	1.0	NOT STABLE		
laporta@unifra.br	PCL		11111.0	112.0	1.0				1.0	STABLE		

ALEXANDRE | Laboratório de Práticas & LASIMON





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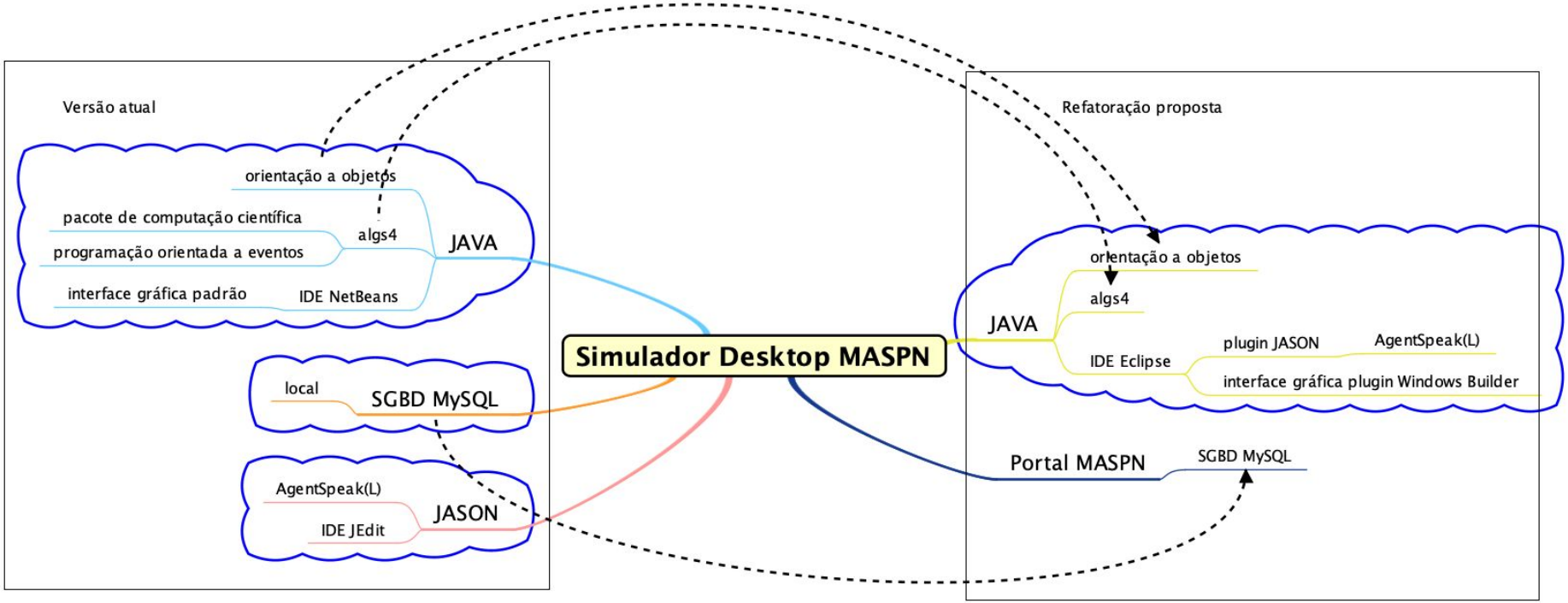

Versão atual
orientação a objetos
pacote de computação científica
algs4
programação orientada a eventos
JAVA
interface gráfica padrão
IDE NetBeans
local
SGBD MySQL
AgentSpeak(L)
JASON
IDE JEdit
Simulador Desktop MASPN
Refatoração proposta
orientação a objetos
algs4
JAVA
IDE Eclipse
plugin JASON
AgentSpeak(L)
interface gráfica plugin Windows Builder
Portal MASPN
SGBD MySQL

Experiment

Create experiment

Researcher	Polymer	Drug	Drug Content (mg/mL)	Size Distribution (nm)	Zeta Potencial (mV)	pH	D.O.I	Result	Edit	Delete
Alexandre Zamberlan	ERS100	CLOTRIMAZOL	3.0	173.0	14.4	5.6	SANTOS et al., 2014)	STABLE		
Alexandre Zamberlan	ERS100	CLOTRIMAZOL	1.0	169.0	14.5	5.7	SANTOS et al., 2014	STABLE		
Alexandre Zamberlan	ERS100	DIHIDROMIRICETINA	1.0	161.0	11.4	5.6	DALCIN et al., 2017	STABLE		
Alexandre Zamberlan	ERS100	DIHIDROMIRICETINA	5.0	123.0	13.4	3.8	DALCIN et al., 2017	NOT STABLE		
Alexandre Zamberlan	ERS100	DIHIDROMIRICETINA	2.0	151.0	12.7	4.2	DALCIN et al., 2017	STABLE		
Alexandre Zamberlan	PCL	NISINA	1.0	234.0	-6.62	5.3	ABREU et al., 2016	STABLE		

Drug

Create drug

Description	Initials
Anfotericina B	ANFOTERICINA B
Clotrimazol	CLOTRIMAZOL
Curcumina	CURCUMINA
Dihidromiricetina	DIHIDROMIRICETINA
Nisina	NISINA
Pravastiatina	PRAVASTIATINA
Sparfloxacino	SPARFLOXACINO
Tretinoína	TRETINOÍNA

Polymer

Create polymer

Description	Initials
Eudragit RL100	ERL100
Eudragit RS100	ERS100
Polycaprolactone	PCL
Polylactic acid	PLA
PLA + Pluronic F68	PLA + PLURONIC F68
PLA + Solutol HS15	PLA + SOLUTOL HS15
Poly(lactic-co-glycolic acid)	PLGA
Quitosana	QUITOSANA

MASPN - Multi-Agent System for Polymeric Nanoparticles

File Perform image pattern recognition About

Zamberlan, PCL, NISINA, ... Don't show charge

Researcher, Polymer, Drug and Drug Content
Zamberlan, ERS100, CLOTRIMAZOL, 1.0
Zamberlan, ERS100, CLOTRIMAZOL, 3.0
Zamberlan, ERS100, DIHIDROMIRICETINA, 1.0
Zamberlan, ERS100, DIHIDROMIRICETINA, 2.0
Zamberlan, ERS100, DIHIDROMIRICETINA, 5.0
Zamberlan, PCL, NISINA, 1.0
Fenner, PCL, NISINA, 1.0

Drug CLOTRIMAZOL

Size distribution (nm) 173.0 SD 12.0

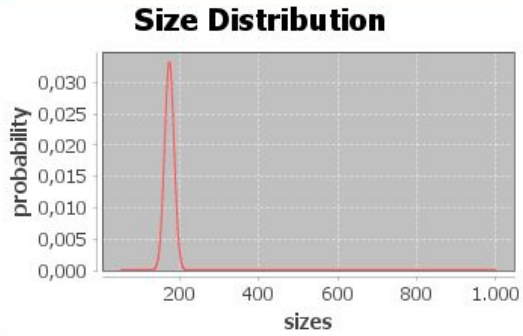
Drug content (mg/mL) 3.0

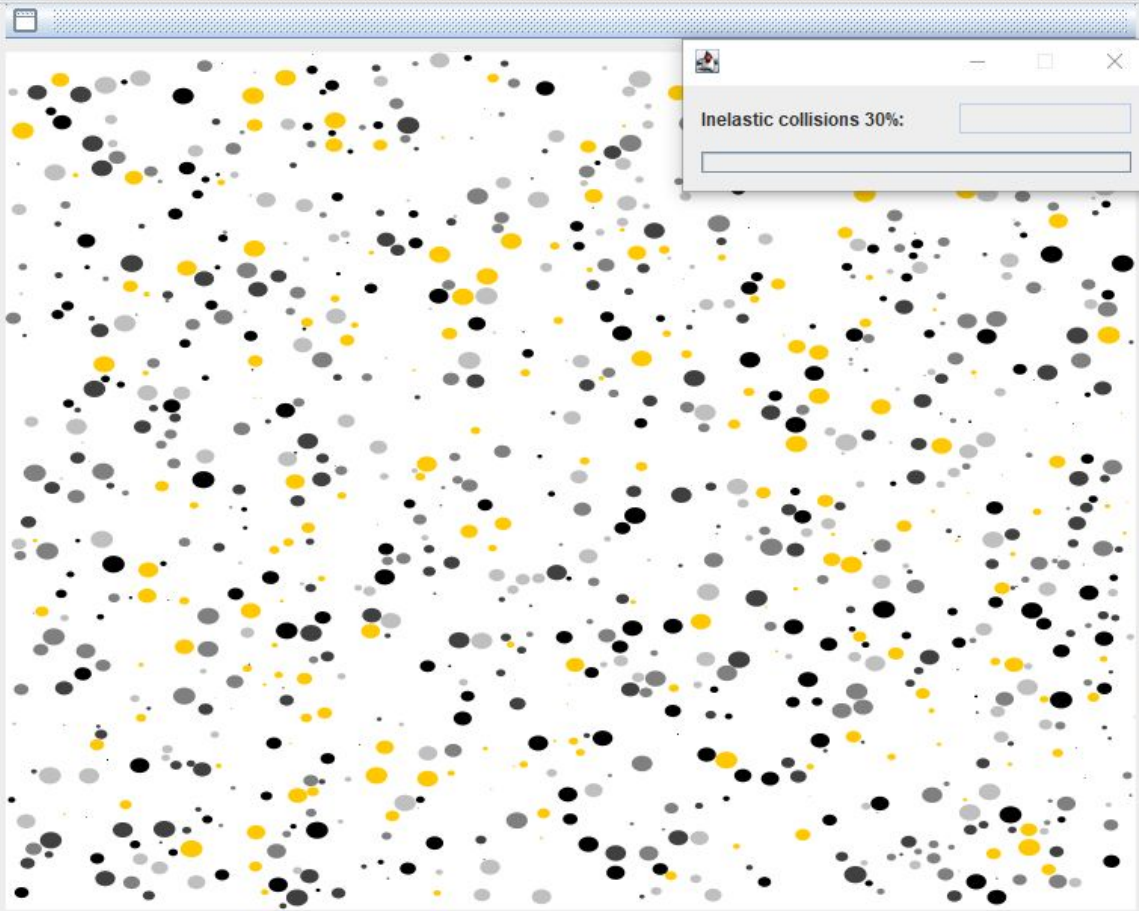
Zeta potential (mV) 14.4 SD 3.0

pH 5.6 SD 0.1

Behaviour Result

Size Potential pH





Inelastic collisions 30%:

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Portal of experiments on polymer nanoparticles for simulation in MASPN

The MASPN simulation tool has database access with experiments published in scientific papers with production data and characterization of polymeric nanoparticles (PNPs). Thus, a collaborative portal among institutions conducting research on PNPs assists in the discovery of knowledge of best practices in nanoparticle production.

Some published results:

- A simulation environment for polymeric nanoparticles based on multi-agent systems
- Multi-Agent Systems, Simulation and Nanotechnology
- Sistema Multiagente para avaliação do efeito de aglomeração em partículas poliméricas

This project is associeted to the Laboratory of Practices of the undergraduate courses in Computer Science and Information Systems and the LASIMON at Universidade Franciscana.

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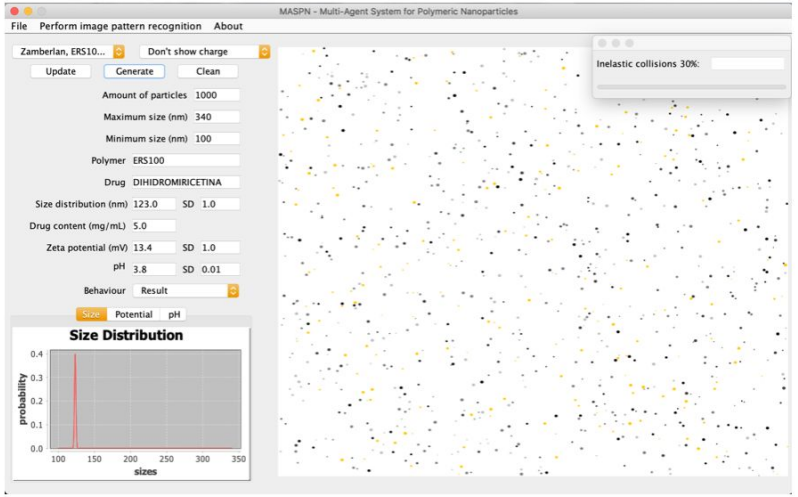
Download

You can download MASPN tool as compressed file.



ATTENTION! There are details for running the MASPN tool.

Windows Users:

- Java JDK installed
- Double click the maspnV2.jar icon

Linux and Mac OS Users:

- Java JDK installed
- Run in shell the command "java -jar maspnV2.jar"

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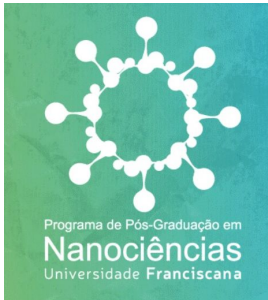
About

The MASPN simulation tool has database access with experiments published in scientific papers with production data and characterization of polymeric nanoparticles (PNPs). Thus, a collaborative portal among institutions conducting research on PNPs assists in the discovery of knowledge of best practices in nanoparticle production.

Collaborators:

- **UFN**
  - Alexandre Zamberlan - Computer science researcher
  - Ana Júlia Dalcin - Pharmacy researcher
  - Ederson Guterres Costa - Information System undergraduate student
  - Guilherme Chagas Kurtz - Computer science researcher
  - Gustavo Pereira - Computer Science undergraduate student
  - Lúcio Colusso Barnewitz - Computer Science undergraduate student
  - Pierre Carvalho Fenner - Computer Science undergraduate student
  - Solange Fagan - Physics researcher
  - Sylvio Vieira - Computer science researcher
  - Tomás Gomes Loureiro - Computer Science undergraduate student
- **PUCRS**
  - Rafael Heitor Bordini - Computer science researcher
- **FEEVALE**
  - Fernando Dal Pont Morisso - Chemistry researcher
  - Kevin Brandon Villa - Chemical Engineering undergraduate student
- **ER Clinic**
  - Robertson Ebling dos Santos - Information Technology professional



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MINISTÉRIO DA ECONOMIA

INSTITUTO NACIONAL DA PROPRIEDADE INDUSTRIAL

DIRETORIA DE PATENTES, PROGRAMAS DE COMPUTADOR E TOPOGRAFIAS DE CIRCUITOS INTEGRADOS

Certificado de Registro de Programa de Computador

Processo Nº: **BR512021001965-2**

O Instituto Nacional da Propriedade Industrial expede o presente certificado de registro de programa de computador, válido por 50 anos a partir de 1° de janeiro subsequente à data de 01/07/2021, em conformidade com o §2°, art. 2° da Lei 9.609, de 19 de Fevereiro de 1998.

Título: MASPN - Multi-agent System for Polymeric Nanoparticle

Data de publicação: 01/07/2021

Data de criação: 04/04/2020

Titular(es): SOCIEDADE CARITATIVA E LITERÁRIA SÃO FRANCISCO DE ASSIS ZONA NORTE

Autor(es): ALEXANDRE DE OLIVEIRA ZAMBERLAN; ROBERTSON EBLING DOS SANTOS; SOLANGE BINOTTO FAGAN; TOMÁS LOUREIRO GOMES; GUILHERME CHAGAS KURTZ; PIERRE CARVALHO FENNER; SYLVIO ANDRÉ GARCIA VIEIRA; ANA JÚLIA FIGUEIRÓ DALCIN; ÉDERSON GUTERRES COSTA; GUSTAVO GARCIA PEREIRA; LUCIO COLUSSO BARNEWITZ; RAFAEL HEITOR BORDINI

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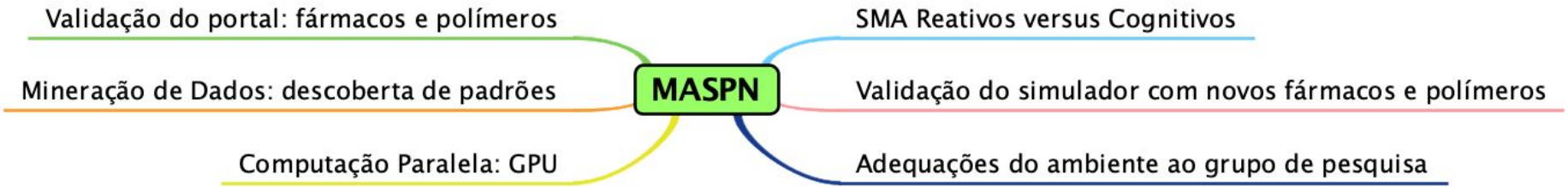
Laboratório de Práticas UFN

Alexandre Zamberlan

alexz@ufn.edu.br



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