

The diagram illustrates a database schema for astronomical data, featuring the following tables and their attributes:

- beam**: id INT, name VARCHAR, desc\_str VARCHAR, pointing\_id INT, beam\_type INT, timestamp\_seconds DECIMAL, is\_coherent TINYINT
- search\_candidate**: id INT, pointing\_id INT, beam\_id INT, processing\_id INT, spin\_period DECIMAL, dm DECIMAL, acc DECIMAL, jerk DECIMAL, omega DECIMAL, tau DECIMAL, phi DECIMAL, long\_perturbation DECIMAL, ecc DECIMAL, sin DECIMAL, ddm\_count\_ratio DECIMAL, ddm\_sin\_ratio DECIMAL, nactive INT, start DECIMAL, fl\_size BIGINT, filename VARCHAR, filepath VARCHAR, nh INT, candidate\_filter\_id INT, metadata\_hash VARCHAR
- data\_product**: id INT, pointing\_id INT, beam\_id INT, processing\_id INT, file\_type\_id INT, filename VARCHAR, filepath VARCHAR, filehash VARCHAR, available TINYINT, upload\_date DATETIME, modification\_date DATETIME, metadata VARCHAR, locked TINYINT, created\_by VARCHAR, beam\_type INT, target\_id INT, utc\_start DATETIME, timestamp\_seconds DECIMAL, tobs\_seconds DECIMAL, nsamples BIGINT, freq\_start\_mhz DECIMAL, freq\_end\_mhz DECIMAL
- processing**: id INT, pipeline\_id INT, hardware\_id INT, subunit\_time DATETIME, start\_time DATETIME, end\_time DATETIME, process\_status VARCHAR, attempt\_number INT, max\_attempts INT, processing\_id INT, pulsar\_id INT, prepfld\_id INT, filboi\_id INT, circular\_orbit\_search\_id INT, elliptical\_orbit\_search\_id INT, rfind\_id INT, candidate\_filter\_id INT, execution\_order INT, program\_name VARCHAR
- file\_type**: id INT, name VARCHAR, description VARCHAR, context ENUM
- antenna**: id INT, name VARCHAR, description VARCHAR, telescope\_id INT, latitude\_degrees FLOAT, longitude\_degrees FLOAT, elevation\_meters FLOAT
- telescope**: id INT, name VARCHAR, description VARCHAR
- pointing**: id INT, start\_datetime DATETIME, tobs\_seconds DECIMAL, rchan RAW INT, freq\_band VARCHAR, target\_id INT, freq\_start\_mhz DECIMAL, freq\_end\_mhz DECIMAL, timestamp\_seconds DECIMAL, telescope\_id INT, receiver VARCHAR
- beam\_type**: id INT, name VARCHAR, description VARCHAR
- pipeline**: id INT, name VARCHAR, description VARCHAR, github\_repo\_name VARCHAR, github\_commit\_hash CHAR, github\_branch VARCHAR
- hardware**: id INT, name VARCHAR, description VARCHAR, job\_scheduler VARCHAR
- person**: id INT, acc\_start DECIMAL, acc\_end DECIMAL, min\_sin DECIMAL, min\_sin DECIMAL, ram\_limit\_gb DECIMAL, nsamples INT, nactive INT, total\_cands\_limit INT, fl\_size BIGINT, dm\_file VARCHAR, accel\_tol DECIMAL, birds\_list VARCHAR, chan\_mask VARCHAR, extra\_args VARCHAR, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- pulsar**: id INT, subbands\_number INT, subunit\_length DECIMAL, cft\_q\_value DECIMAL, flt\_nbins INT, slow\_nbins INT, rf\_filter VARCHAR, extra\_args VARCHAR, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- prepfld**: id INT, npus INT, rfind\_mask VARCHAR, extra\_args VARCHAR, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- filboi**: id INT, rf\_filter VARCHAR, telescope\_name VARCHAR, threads INT, extra\_args VARCHAR, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- circular\_orbit\_search**: id INT, min\_porb\_h DECIMAL, max\_porb\_h DECIMAL, min\_pulsar\_mass\_m0 DECIMAL, max\_comp\_mass\_m0 DECIMAL, min\_orb\_phase\_rad DECIMAL, max\_orb\_phase\_rad DECIMAL, coverage DECIMAL, mismatch DECIMAL, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- elliptical\_orbit\_search**: id INT, min\_porb\_h DECIMAL, max\_porb\_h DECIMAL, min\_pulsar\_mass\_m0 DECIMAL, max\_comp\_mass\_m0 DECIMAL, min\_orb\_phase\_rad DECIMAL, max\_orb\_phase\_rad DECIMAL, min\_ecc DECIMAL, max\_ecc DECIMAL, min\_perturbation\_rad DECIMAL, max\_perturbation\_rad DECIMAL, coverage DECIMAL, mismatch DECIMAL, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- rfind**: id INT, time DECIMAL, time\_sigma DECIMAL, freq\_sigma DECIMAL, chan\_frac DECIMAL, int\_frac DECIMAL, npus INT, extra\_args VARCHAR, container\_image\_name VARCHAR, container\_image\_version VARCHAR, container\_type VARCHAR, argument\_hash VARCHAR, container\_image\_id VARCHAR
- candidate\_filter**: id INT, name VARCHAR, description VARCHAR
- target**: id INT, target\_name VARCHAR, ra VARCHAR, dec VARCHAR, proper\_id INT, core\_radius\_arcmin\_harris FLOAT, core\_radius\_arcmin\_baumgardt FLOAT, half\_mass\_radius\_arcmin\_harris FLOAT, half\_mass\_radius\_arcmin\_baumgardt FLOAT, half\_light\_radius\_arcmin\_harris FLOAT, half\_light\_radius\_arcmin\_baumgardt FLOAT

Relationships are indicated by dashed lines connecting fields in different tables. For example, 'id' in 'beam' is linked to 'beam\_id' in 'search\_candidate', 'data\_product', and 'processing'. 'pointing\_id' in 'search\_candidate' is linked to 'pointing\_id' in 'search\_candidate' and 'pointing'. 'processing\_id' in 'search\_candidate' is linked to 'processing\_id' in 'processing'. 'file\_type\_id' in 'data\_product' is linked to 'id' in 'file\_type'. 'antenna\_id' in 'beam' is linked to 'id' in 'antenna'. 'telescope\_id' in 'beam' is linked to 'id' in 'telescope'. 'target\_id' in 'beam' is linked to 'id' in 'target'. 'hardware\_id' in 'processing' is linked to 'id' in 'hardware'. 'person\_id' in 'processing' is linked to 'id' in 'person'. 'pulsar\_id' in 'processing' is linked to 'id' in 'pulsar'. 'prepfld\_id' in 'processing' is linked to 'id' in 'prepfld'. 'filboi\_id' in 'processing' is linked to 'id' in 'filboi'. 'circular\_orbit\_search\_id' in 'processing' is linked to 'id' in 'circular\_orbit\_search'. 'elliptical\_orbit\_search\_id' in 'processing' is linked to 'id' in 'elliptical\_orbit\_search'. 'rfind\_id' in 'processing' is linked to 'id' in 'rfind'. 'candidate\_filter\_id' in 'processing' is linked to 'id' in 'candidate\_filter'. 'container\_image\_id' in 'person', 'pulsar', 'prepfld', 'filboi', 'circular\_orbit\_search', 'elliptical\_orbit\_search', 'rfind', and 'candidate\_filter' is linked to 'id' in 'target'.

fold_candidate
id:INT
pointing_id:INT
beam_id:INT
processing_id:INT
spin_period:DECIMAL
dm:DECIMAL
aoc:DECIMAL
jerk:DECIMAL
omega:DECIMAL
tau:DECIMAL
phi:DECIMAL
long_periastron:DECIMAL
ecc:DECIMAL
fold_snr:DECIMAL
filename:VARCHAR
filepath:VARCHAR
file_type_id:INT
search_candidate_id:INT
metadata_hash:VARCHAR

search_candidate
id:INT
pointing_id:INT
beam_id:INT
processing_id:INT
spin_period:DECIMAL
dm:DECIMAL
acc:DECIMAL
jerk:DECIMAL
omega:DECIMAL
tau:DECIMAL
phi:DECIMAL
long_pernastion:DECIMAL
ecc:DECIMAL
sint:DECIMAL
ddm_count_ratio:DECIMAL
ddm_snr_ratio:DECIMAL
nassoc:INT
lsatid:DECIMAL
file_size:BIGINT
filename:VARCHAR
filepath:VARCHAR
nh:INT
candidate_filter_id:INT
metadata_hash:VARCHAR

data_product
id:INT
pointing_id:INT
beam_id:INT
processing_id:INT
file_type_id:INT
filename: VARCHAR
filepath: VARCHAR
filehash: VARCHAR
available: TINYINT
upload_date: DATETIME
modification_date: DATETIME
metainfo: VARCHAR
locked: TINYINT
created_by: VARCHAR
beam_type_id:INT
target_id:INT
utc_start: DATETIME
tsamp_seconds: DECIMAL
tobs_seconds: DECIMAL
nsamples: BIGINT
freq_start_mhz: DECIMAL
freq_end_mhz: DECIMAL

processing
id:INT
pipeline_id:INT
hardware_id:INT
submit_time:DATETIME
start_time:DATETIME
end_time:DATETIME
process_status:VARCHAR
attempt_number:INT
max_attempt:INT
pcapoux_id:INT
pulsar_id:INT
prepfold_id:INT
flitool_id:INT
circular_orbit_search_id:INT
elliptical_orbit_search_id:INT
rfid_id:INT
candidate_filter_id:INT
execution_order:INT
program_name:VARCHAR

file_type
id:WT
name: VARCHAR
description: VARCHAR
context: ENUM

pointing
id:INT
utc_start:DATETIME
tobs_seconds:DECIMAL
nchan_raw:INT
freq_band:VARCHAR
target_id:INT
freq_start_mhz:DECIMAL
freq_end_mhz:DECIMAL
tsamp_raw_seconds:DECIMAL
telescope_id:INT
receiver:VARCHAR

beam_type
id:INT
name: VARCHAR
description: VARCHAR

pipeline
id:INT
name:VARCHAR
description:VARCHAR
repo_name:VARCHAR
commit_hash:CHAR
branch:VARCHAR

hardware
id:INT
name:VARCHAR
description:VARCHAR
job_scheduler:VARCHAR

peasoup
id:INT
acc_start:DECIMAL
acc_end:DECIMAL
min_snr:DECIMAL
ram_limit_gb:DECIMAL
rharmonics:INT
ngpus:INT
total_cands_limit:INT
fit_size:BIGINT
dm_file:VARCHAR
accel_tol:DECIMAL
birdie_list:VARCHAR
chan_mask:VARCHAR
extra_args:VARCHAR
container_image_name:VARCHAR
container_image_version:VARCHAR
container_type:VARCHAR
argument_hash:VARCHAR
container_image_id:VARCHAR

pulsarx
id:INT
subbands_number:INT
subint_length:DECIMAL
clfd_q_value:DECIMAL
list_nbins:INT
slow_nbins:INT
rft_filter:VARCHAR
extra_args:VARCHAR
container_image_name:VARCHAR
container_image_version:VARCHAR
container_type:VARCHAR
threads:INT
argument_hash:VARCHAR
container_image_id:VARCHAR

prepfold
id:INT
ncpus:INT
rfifid_mask: VARCHAR
extra_args: VARCHAR
container_image_name: VARCHAR
container_image_version: VARCHAR
container_type: VARCHAR
argument_hash: VARCHAR
container_image_id: VARCHAR

filter
id:INT
rfi_filter: VARCHAR
telescope_name: VARCHAR
threads: INT
extra_args: VARCHAR
container_image_name: VARCHAR
container_image_version: VARCHAR
container_type: VARCHAR
argument_hash: VARCHAR
container_image_id: VARCHAR

circular_orbit_search
id:WT
min_porb_h:DECIMAL
max_porb_h:DECIMAL
min_pulsar_mass_m0:DECIMAL
max_comp_mass_m0:DECIMAL
min_orb_phase_rad:DECIMAL
max_orb_phase_rad:DECIMAL
coverage:DECIMAL
mismatch:DECIMAL
container_image_name:VARCHAR
container_image_version:VARCHAR
container_type:VARCHAR
argument_hash:VARCHAR
container_image_id:VARCHAR

elliptical_orbit_search
id:int
min_porb_h:DECIMAL
max_porb_h:DECIMAL
min_pulsar_mass_m0:DECIMAL
max_comp_mass_m0:DECIMAL
min_orb_phase_rad:DECIMAL
max_orb_phase_rad:DECIMAL
min_ecc:DECIMAL
max_ecc:DECIMAL
min_periastron_rad:DECIMAL
max_periastron_rad:DECIMAL
coverage:DECIMAL
mismatch:DECIMAL
container_image_name:VARCHAR
container_image_version:VARCHAR
container_type:VARCHAR
argument_hash:VARCHAR
container_image_id:ID:VARCHAR

rfind
id:INT
time:DECIMAL
time_sigma:DECIMAL
freq_sigma:DECIMAL
chan_frac:DECIMAL
int_frac:DECIMAL
nopus:INT
extra_args:VARCHAR
container_image_name:VARCHAR
container_image_version:VARCHAR
container_type:VARCHAR
argument_hash:VARCHAR
container_image_id:VARCHAR

candidate_filter
id: wvr
name: VARCHAR
description: VARCHAR

telescope
id: INT
name: VARCHAR
description: VARCHAR

target
id: INT
target_name: VARCHAR
ra: VARCHAR
dec: VARCHAR
notes: VARCHAR
project_id: INT
core_radius_arcmin_harris: FLOAT
core_radius_arcmin_baumgardt: FLOAT
half_mass_radius_arcmin_harris: FLOAT
half_mass_radius_arcmin_baumgardt: FLOAT
half_light_radius_arcmin_harris: FLOAT
half_light_radius_arcmin_baumgardt: FLOAT

project
id: INT
name: VARCHAR
description: VARCHAR